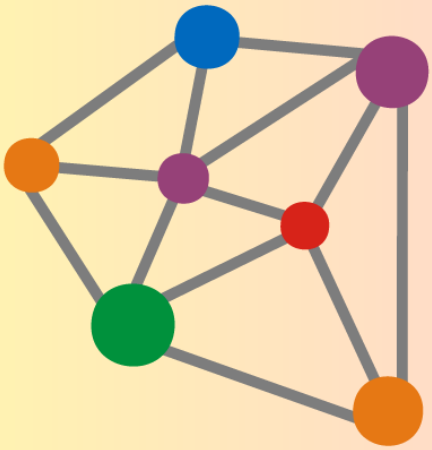
LABORATÓRIO DE PESQUISA E ENSINO DE LEITURA E REDAÇÃO



Simpósio de Intercâmbio Acadêmico 2024

IV Symposium of Academic Exchange

UFSM

Proceedings of the

IV Symposium of Academic Exchange

02, 04 e 05 de dezembro de 2024

Universidade Federal de Santa Maria
SEDES SAPIENTIÆ
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UFSM

Laboratório de Pesquisa e Ensino de Leitura e Redação
Projeto Línguas no Campus

Proceedings of the IV Symposium of Academic Exchange (SAE)

Organization:

Roséli Gonçalves do Nascimento, Patricia Streppel Hartemink, Gabriel Salinet Rodrigues, and Juliana Michelon Ribeiro

Contributors:

Bianca de Camargo e Silva and Isadora de Vasconcellos Mena Barreto

IV SAE Organizing Committee

Steering Comittee

Roséli Gonçalves do Nascimento, Gabriel Salinet Rodrigues, Juliana Michelon Ribeiro, and Patricia Streppel hartemink

Extended committee

Amy Graham Lee, Daniela Schwarcke do Canto, Fabiana da Silva Aymay, Isadora do Nascimento Lemos, Isadora de Vasconcellos Mena Barreto, and Kamila Morales Garcia

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FOREWORD

The **Symposium of Academic Exchange** (SAE) is conceived as an initiative of internationalization at home by promoting the purposeful integration of international, intercultural, and interdisciplinary dimensions into the informal curriculum within the domestic environment (Beelen; Jones, 2015) of the *Universidade Federal de Santa Maria* (UFSM). The event is an authentic forum for novice researchers from the Global South to develop academic literacies in English as an additional language from a glocal perspective, that is, by building skills aimed at international communication while addressing local issues and without leaving the campus.

The SAE is organized by the Laboratory of Research and Teaching of Reading and Writing (LabLeR), via Languages in the Campus Project (LINC), and was articulated under the *Simpósio de Intercâmbio Acadêmico 2024 (SIA)*, also in collaboration with SAI and the Postgraduation Dean's Office (PRPGP). In its fourth edition, the SAE received 72 submissions, 49 of which in the Higher Education modality (undergraduate and graduate students from several disciplinary fields) and 23 in the High School modality. It is relevant to observe the growing participation of highschoolers in this edition (as compared to the 5 participants in the previous year). This increment would not be possible without collaboration with the staff from the Technical Schools at UFSM, particularly the devout and qualified engagement of Ms. Milene Vania Kloss, one of the English educators at CTISM/UFSM, that motivated and assisted her young students to face the challenge proposed by SAE.

All submitted abstracts from both modalities were reviewed by an examining board following the criteria established in the Public Notice, resulting in 62 acceptances. Thirty-nine presentations were delivered along three sessions conducted on December 2, 4 and 5, 2024. Fourteen of the presentations were awarded academic distinctions, including the three winning presentations in each modality. As multimodal discourse analysts, who believe that science is communicated via a combination of multiple semiotic resources beyond verbal language, we are delighted to announce that these Proceedings include the slides that accompanied the 39 delivered presentations.

FOREWORD

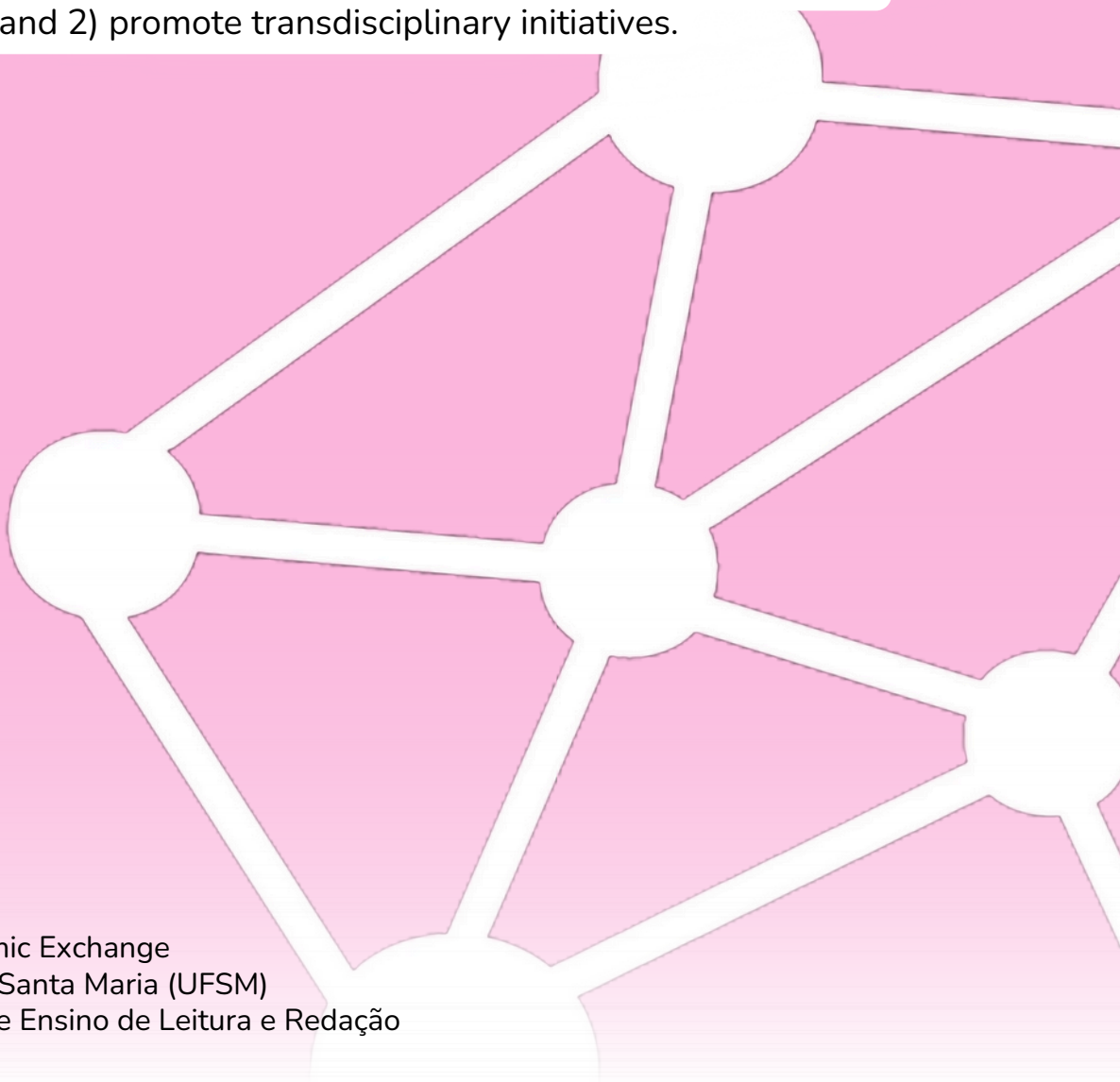
On behalf of the organizing committee, we would like to express sincere appreciation to all the novice researchers who undertook the challenge of sharing their research findings in English during the IV SAE. By extension, we acknowledge the pivotal role of supervisors, research groups, and laboratories that provided the means for presenters to participate. Additionally, we acknowledged the indispensable support of our university's administrative staff in the form of human and financial resources. Our gratitude also goes to sponsors from the external community for their recognition of our event by offering prizes to best presentations to further stimulate these young researchers into the challenge.

Dr. Roseli Gonçalves do Nascimento
Patricia Streppel Hartemink
Gabriel Salinet Rodrigues
Juliana Michelon Ribeiro

BEELEN, J.; JONES, E. Redefining Internationalization at Home. *In*: CURAJ, A.; MATEI L.; PRICOPIE, R.; SALMI, J.; SCOTT, P. (eds.). **The European Higher Education Area**. Springer, Cham, 2015. p. 59-72.

SAE HIGH SCHOOL

SAE High School is aimed at non-Anglophone high-school students from Polytechnic School and Technical Industrial School at UFSM. Young researchers are challenged to present their experiences on reflecting and/or applying key concepts learned within the context of disciplines and projects in English in up to five minutes, in an engaging way, so that it can be understood by wider audiences. The event aims to 1) offer a forum for these students to develop their academic literacies in English, and 2) promote transdisciplinary initiatives.



IV Symposium of Academic Exchange
Universidade Federal de Santa Maria (UFSM)
Laboratório de Pesquisa e Ensino de Leitura e Redação
(LabLeR)

H20RTA: AUTOMATED IRRIGATION SYSTEM FOR SUSTAINABLE FARMING AND GARDENING

Arthur Bernardo Paul[1], Fabio Teixeira Franciscato[2], Milene Vânia Kloss[3]

Abstract: The process of watering plants by hand is becoming old fashioned because of technology. Today, microcontrollers and sensors are changing farming, bringing automation to daily work. One example is the H20rta project, developed at Colégio Técnico Industrial de Santa Maria (CTISM). This project uses modern technology to make irrigation more efficient and sustainable. The goal of H20rta is to automate irrigation by using sensors to check soil moisture. When it gets too dry, the system turns on automatically. With microcontrollers like Arduino, farmers can save water and give plants the right amount of water that is necessary. The first tests showed big water savings, proving that automated systems can help reduce waste. It is also easy to use and requires less manual work. The H20rta project is not only about technology, but also shows commitment to sustainability. Automating irrigation can reduce water use. The project also pushes for innovation in farming and gardening, where saving water is important. In conclusion, the H20rta project is a great way to demonstrate CTISM students how technology can make old practices better and help create a more sustainable future.

Keywords: Automated irrigation. Arduino. Sensors. Sustainability. Water conservation.

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PEACE DISTURBANCE PREVENTION SYSTEM – SP3

Arthur Vasconcelos[1], Fabio Franciscato[2], Milene V. Kloss[3]

Abstract: This study, called "Peace Disturbance Prevention System" (SP3), aims to create a technological solution to monitor and reduce high noise levels in residential areas. The main goal of this system is to help neighbors live together peacefully by automatically notifying the residents when they are exceeding noise levels. Noise pollution is a common problem in residential buildings, and this study offers an alternative solution to deal with it. The system uses an ESP32 microcontroller connected to a sound sensor to monitor noise in real time. The ESP32 works as an access point, processing the data from the sensor and calculating the noise levels in decibels. The data collected, such as noise levels and information about who caused the noise, are saved in a local database on a computer. Leds in the device allows residents to check their infraction count in real time, helping them become more aware and adjust their behavior. The data collected can also help to identify behavior patterns and support community rules. In conclusion, the "Peace Disturbance Prevention System" offers a promising solution to improve quality of life in residential areas by reducing the negative effects of loud noises.

Keywords: Sound sensor. Noise pollution. Residential areas.

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ACCESS CONTROL AND PHYSICAL ENVIRONMENT MANAGEMENT SYSTEM

Augusto Thomasi[1],Tiago Antonio Rizzetti[2], Milene Kloss Nunes[3]

Abstract: The automation of monitoring and access control processes tends to contribute significantly to greater efficiency and traceability for most user actions, whether in logical or physical environments. In the case of physical access control, manual or non-integrated processes are subject to outdated, inaccurate, or missing information, making the reliability of these systems fragile. In this regard, the research aims to develop a system for access control and environment management, integrating software and hardware resources. This system incorporates cyber-physical control, resilience mechanisms, new cryptographic algorithms, and integration with federated databases. The integration will focus on IoT environment, and on interconnected devices, such as cameras and sensors. As for the results, it is expected to implement new user data entry methods, create an architecture for federated authentication information exchange, integrate cyber-physical solutions, and develop a basic structure for secure authentication. The work is applied practically to enhance the monitoring and access control mechanisms at the Industrial Technical College of Santa Maria, thereby increasing its security.

Keywords: Security. Access Control. Management. Cyber-Physical Systems.

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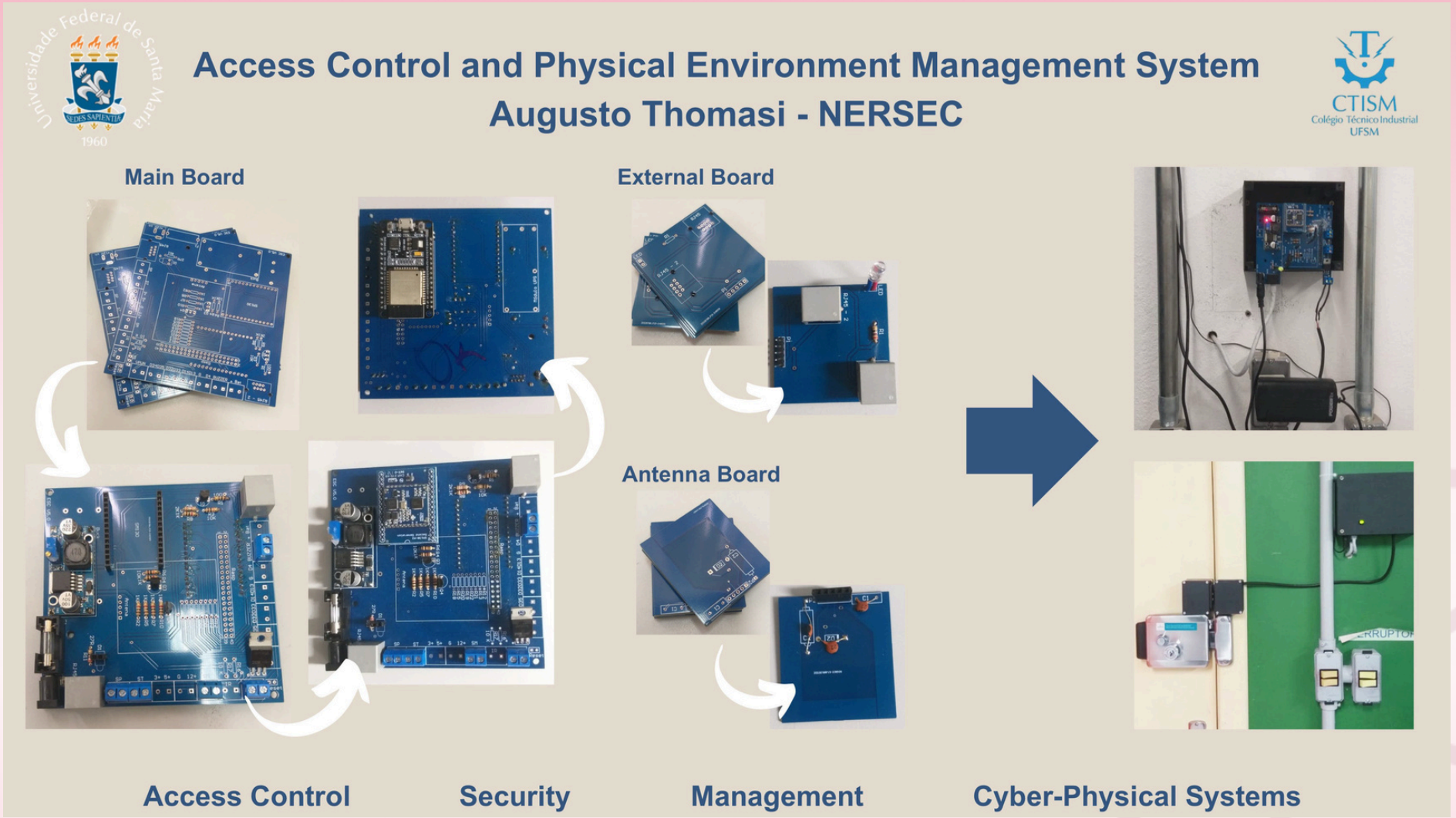
ACCESS CONTROL AND PHYSICAL ENVIRONMENT MANAGEMENT SYSTEM



TECHOME

Bruna Campanhola[1], Fabio Franciscato[2], Milene Vânia Kloss[3]

Abstract: Technology and Computing are growing branches in the job market and they both are becoming increasingly important for people's everyday lives. The objective of this work is to use computing technology to build a project of a modern technological home, named TecHome. It consists mainly in elaborating some functions, like doors and windows with sensors. When the sensors capture signs of the water, or are remotely activated, the doors and the windows can close by themselves. For the creation of the home basement, it was used a cardboard and some acrylic putty. All Servo motors, protoboard, ESP 32 and water sensor, the windows and doors were developed through a 3D printer. The app Arduino IDE was used for the code creation, which uses the programming language C++. To make the control remotely were used HTML and CSS. With the smart systems integration, we aim to not only offer a practical solution, but to encourage the interaction with the technology, making it accessible and beneficial for everyone.

Keywords: Home. Doors. Windows. Technology.

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RESERVOIRS INTELLIGENT LEVEL METER

Bruno Bellinaso Brasil[1], Fabio Teixeira Franciscato[2], Milene Vânia Kloss[3]

Abstract: This project was developed as part of the Internet of Things (IoT) school subject, aiming to provide a practical solution for monitoring liquid levels in reservoirs that are difficult to access, such as elevated water tanks, underground gasoline station tanks, agricultural equipment reservoirs, and similar storage containers. The system is carefully designed to facilitate the constant monitoring of the available volume of liquid stored in these containers, providing real-time data to users. An Arduino Leonardo microcontroller serves as the central computing unit responsible for processing data and managing the connections to various sensors involved in the setup. The ultrasonic sensor is installed at the top of the reservoir and works by measuring the distance from its position to the liquid level below. Through a simple proportional calculation, the Arduino determines the precise amount of liquid, either in milliliters or liters, remaining in the reservoir. Additionally, a thermometer placed within the container measures the liquid's temperature and transmits this data to the Arduino. Lastly, an LCD display located outside the reservoir visually shows the user the current liquid level and temperature, making the information easily accessible.

Keywords: Arduino. Iot. Automation. Monitoring. Measurement.

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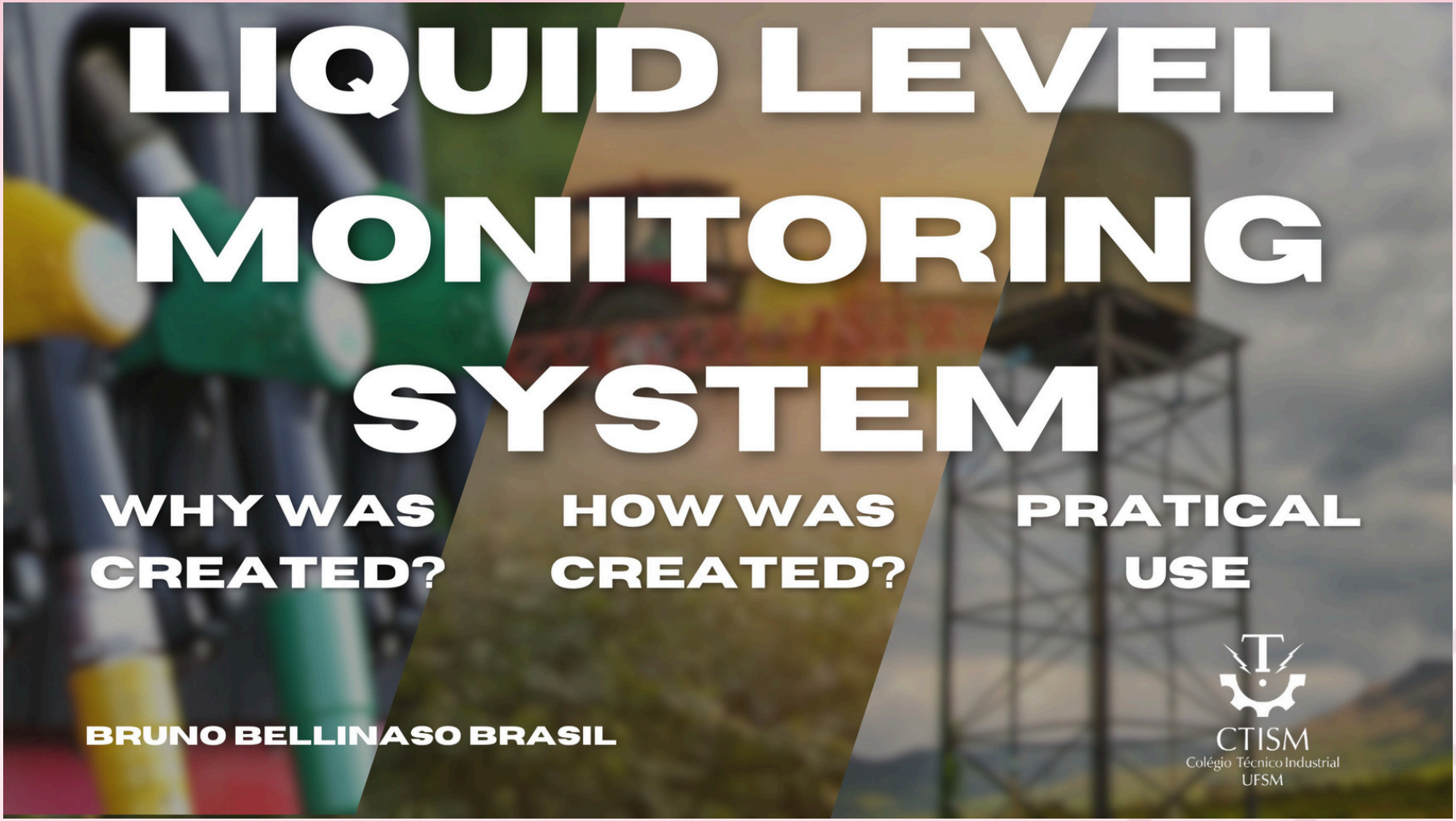
RESERVOIRS INTELLIGENT LEVEL METER



ULTRASONIC TRACTOR BEAM

Gabrielli Santos Garlet[1], Fernando Guilherme Kaehler Guarda[2], Milene Vânia Kloss[3]

Abstract: This experiment aims to demonstrate practical applications of physics in the field of acoustics. The ultrasonic tractor beam is a device that generates sound waves, capable of attracting an object towards its emission source. The sound waves are emitted by means of transducers arranged in a concave shape. Each of these can be controlled independently so that the waves generated together act to form a 3D acoustic field, which captures an object by means of a vortex, a kind of "Tornado of sound", with a silent core, where the body remains in equilibrium, levitating. The size and rotation rate of the vortex can be controlled by changing the settings of the sound waves emitted by transducers . The following components are used to build the experiment: 30 transducers (40KHz), 1 arduino nano board, 1 L298N dual motor drive board, 1 power supply, M3 (6mm) screws, M3 nuts and 1 3D printed base (bowl-shaped). With the execution of the experiment, the application of knowledge in both acoustics and electronics becomes visible.

Keywords: Acoustics levitation. Ultrasound Waves. Tractor beam.

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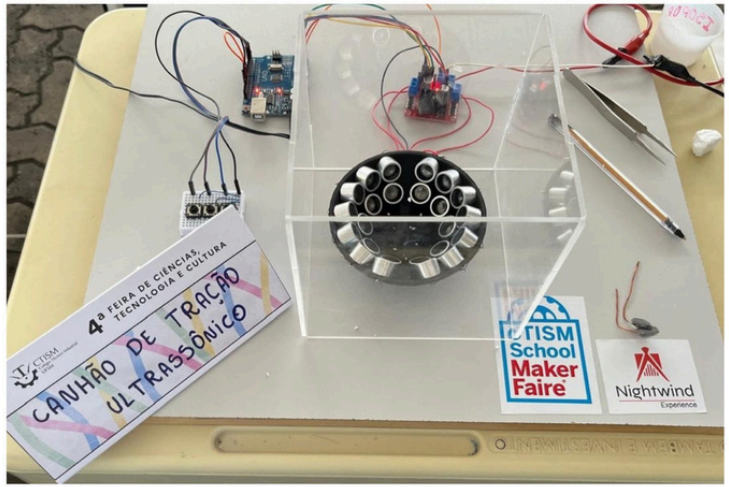
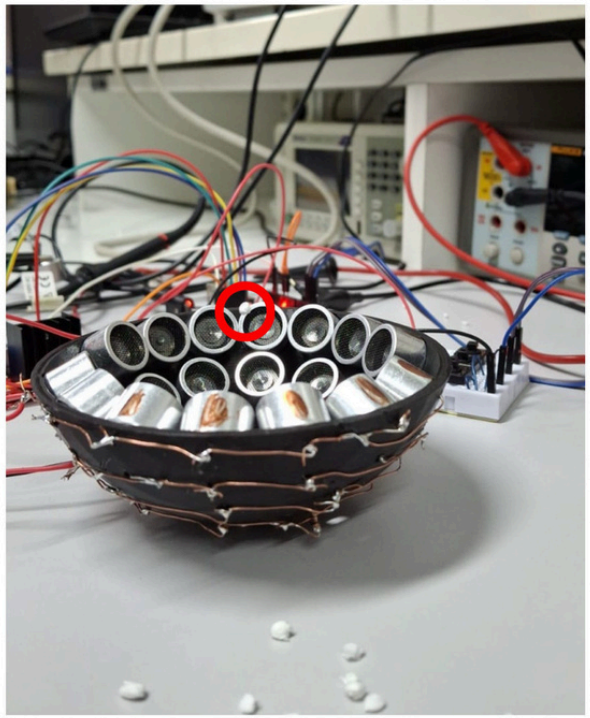
ULTRASONIC TRACTOR BEAM

Ultrassonic Tractor Beam





Gabrielli Santos Garlet
Prof. Fernando Guilherme Kaehler Guarda
Profª. Milene Vânia Kloss

OPTICAL AID CAP

Guilherme Kolinski Baccin[1], Fabio Teixeira Franciscato[2], Milene Vânia Kloss[3]

Abstract: People with visual impairments face significant challenges when walking through public or crowded spaces. Therefore, the objective of this work is to develop an assistive technology tool to facilitate mobility for individuals with visual disabilities. A cap was designed with two Arduino Leonardo boards connected to various sensors, including infrared, ultrasonic, speakers, and buzzers. The ultrasonic sensor detects nearby objects to prevent collisions. If it identifies an obstacle, the buzzers will be activated to alert the user. The infrared sensor is used to inform the wearer about their location; for example, indicating which room they are in, such as "Room 105." Additionally, the speakers can vocalize the information detected by the infrared sensor. If the infrared sensor identifies Room 105, the speaker may announce this information loudly. Furthermore, the C++ programming language was used, along with a 9V battery, an Arduino Mega, and a 3D printer to create cases for housing the Arduino boards. The results indicate that this project can positively impact individuals with such difficulties, assisting them in their movement and providing its users greater autonomy. For future work, it is recommended to replace the infrared sensor with a radio frequency sensor or to utilize Bluetooth technology

Keywords: Visual impairments. Mobility. Technology. Cap. Sensors.

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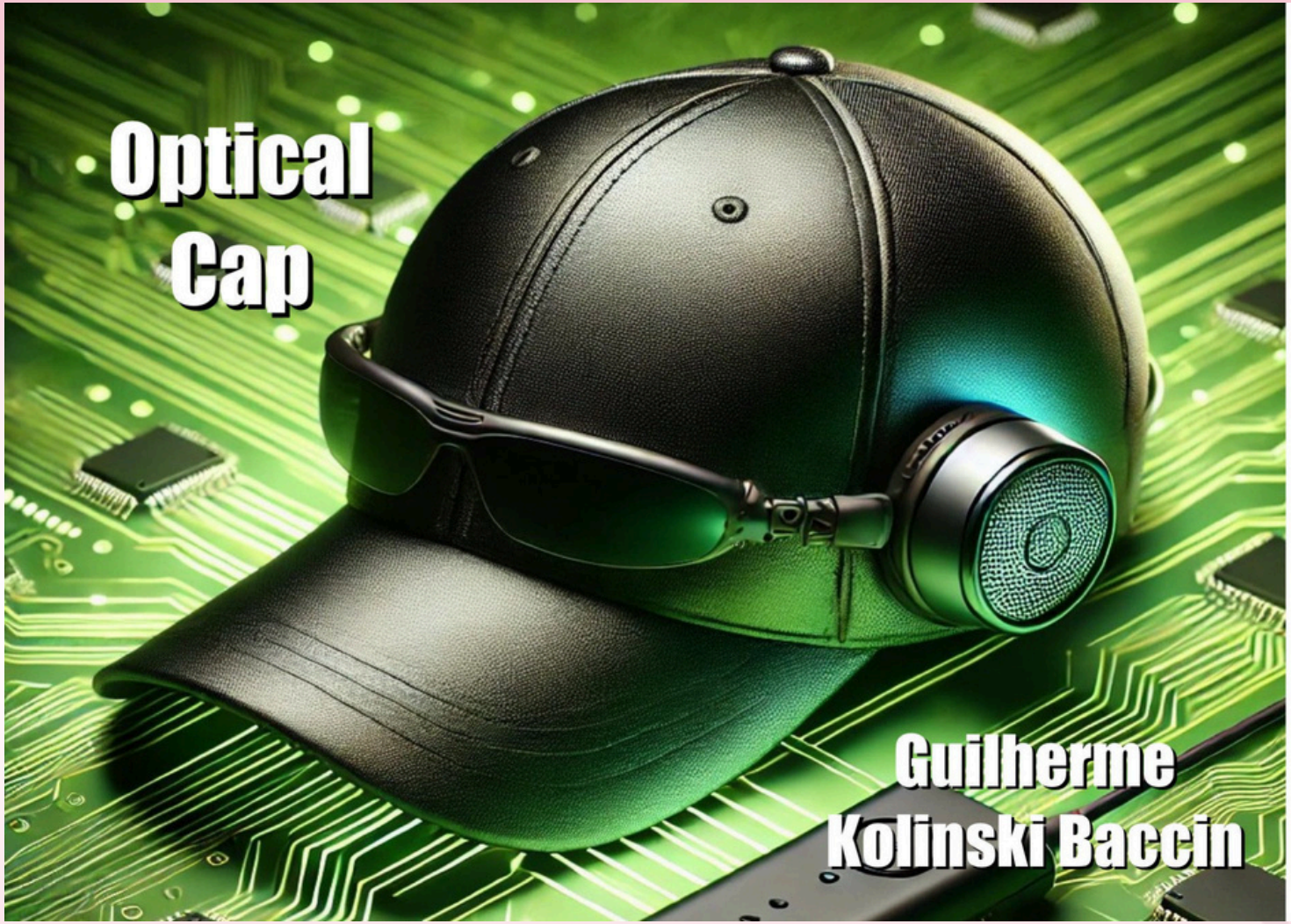
OPTICAL AID CAP



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Jornada Acadêmica Integrada - UFSM

NEURO – X APPLICATION OF PNEUMATICS FOR USE IN PHYSIOTHERAPY AND TRANSITION FROM A PROTOTYPE TO AN INDUSTRIAL PRODUCT

Guilherme Sarzi Sartori Viero[1], Sérgio Adalberto Pavani[2], Milene Vânia Kloss[3]

Abstract: The NeuroX Project is a device used for rehabilitating people with neurological problems. It is being developed based on electro-pneumatic systems. The device is designed according to the requirements specified by the medical team. The prototype was built with pneumatic bellows that have a high load capacity and a PLC (Programmable Logic Controller), which allows the execution of sequences for moving the platform. Compressed air is used as the source to activate the bellows, and electro-pneumatic valves are employed to release the compressed air. The base of the platform is an 80x80 cm MDF board with a 30 mm iron limiter. The patient positions themselves on the platform, and then the PLC is activated. This enables the patient to perform rehabilitation or physiotherapy. For added safety, a harness suspended from the ceiling or a steel barrier around the platform can be used in case the patient falls. The device has demonstrated potential in the medical field for the recovery of neurological problems. It is aimed to manufacture this product in Brazil, also as a way to invest more in domestic products. It can be a more affordable solution to the consumers, improving the quality of people's lives.

Keywords: Balance. Automation. Medical equipment projects. Recovery of neurological patients.

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NEURO – X APPLICATION OF PNEUMATICS FOR USE IN PHYSIOTHERAPY AND TRANSITION FROM A PROTOTYPE TO AN INDUSTRIAL PRODUCT

NEURO X

Guilherme S. S. Viero

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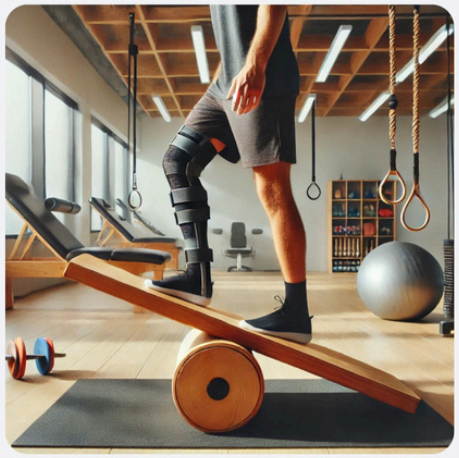
PROBLEMS

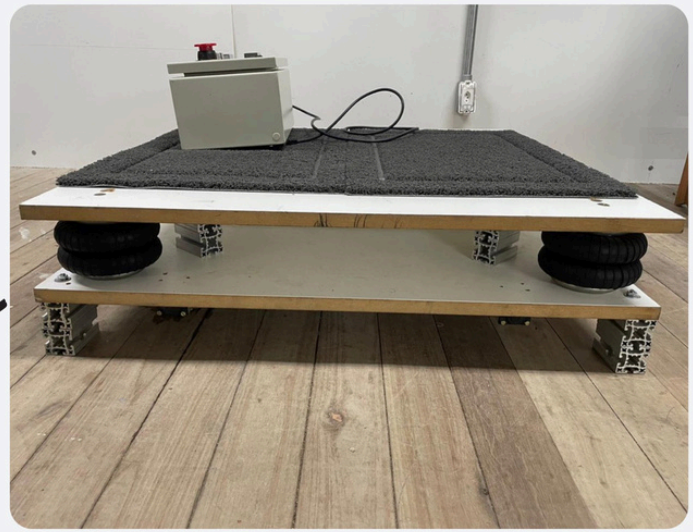


physiotherapy

expensive

IMPLICATION

PROTOTYPE



treatment and PLC (sequencies)

TURNING ON LAMPS WITH LEMONS

Heitor Kloss Nunes [1], Viviane T. Sebalhos Dal Molin[2], Milene Vânia Kloss[3]

Abstract: Science fair projects provide students an opportunity to apply scientific processes to problems or questions that interest them. These events are practical and relevant because they are an opportunity to get students out of notebooks and into real life. With that understanding, the objective of this work is to demonstrate a Chemistry project performed at the 4th CTISM Science Fair. It is a simple and effective way of generating electricity from a chemical reaction: turning up a lamp with some lemons. In this regard, some coins were used to act as copper electrodes, and each one of them were inserted into four lemon shells. On the opposite side of each lemon, some galvanized washers, that contained zinc, were inserted. They were the other electrodes. Wires with alligator clips were also used to connect the lemons in series, and just like that, a lamp was turned on. With this work, it is concluded that anyone can make a chemical experience using simple materials and in a short period of time. That way, students can learn how different phenomena happen, also preparing themselves to be future science-conscious thinkers and problem solvers.

Keywords: Lemon. Electricity. Chemical reaction. Science.

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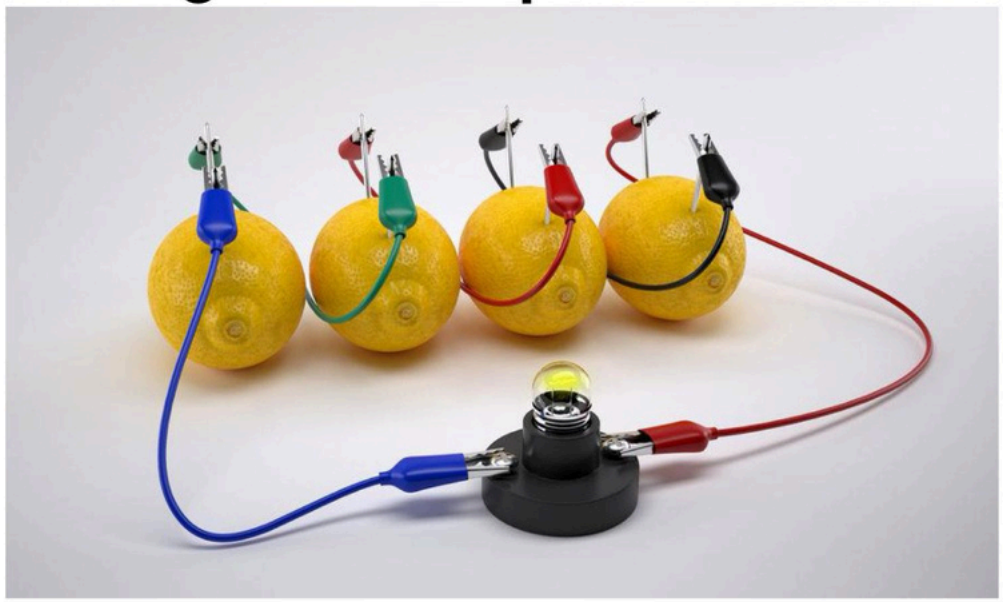
TURNING ON LAMPS WITH LEMONS

Turning on lamps with lemons



Heitor Kloss Nunes

II Simpósio de Intercâmbio Acadêmico
III Symposium of Academic Exchange

INTRODUCTORY STUDY OF NEURONS: STRUCTURE AND FUNCTION OF A NEURON

João Victor da Costa Freitas[1], Josiane Pacheco Menezes[2], Milene Vânia Kloss[3]

Abstract: This study delves into the structural and functional characteristics of neurons, the foundational units of the nervous system, aiming to provide an accessible overview of their nature and significance in daily life. Neurons play a crucial role in various cognitive and physiological processes, yet much of the available neuroscience knowledge remains out of reach for many. This research intends to bridge this gap by presenting introductory insights into neurons in an accessible format. Employing a descriptive approach, the study examines neuron characteristics through a combination of 3D models and handcrafted representations, allowing for an in-depth comparison with other cell types. A neuron model was constructed as part of this research, with a detailed assembly process documented and presented for review by advisors and the public. Preliminary evaluations suggest that these models are effective educational tools, sparking interest and discussions about the roles of neurons and their relevance in adapting to technological advancements. By presenting findings in English, this research broadens its reach, fostering greater understanding and engagement with the topic.

Keywords: Neuron. Neural cell. Neuroscience. Presentation. Research.

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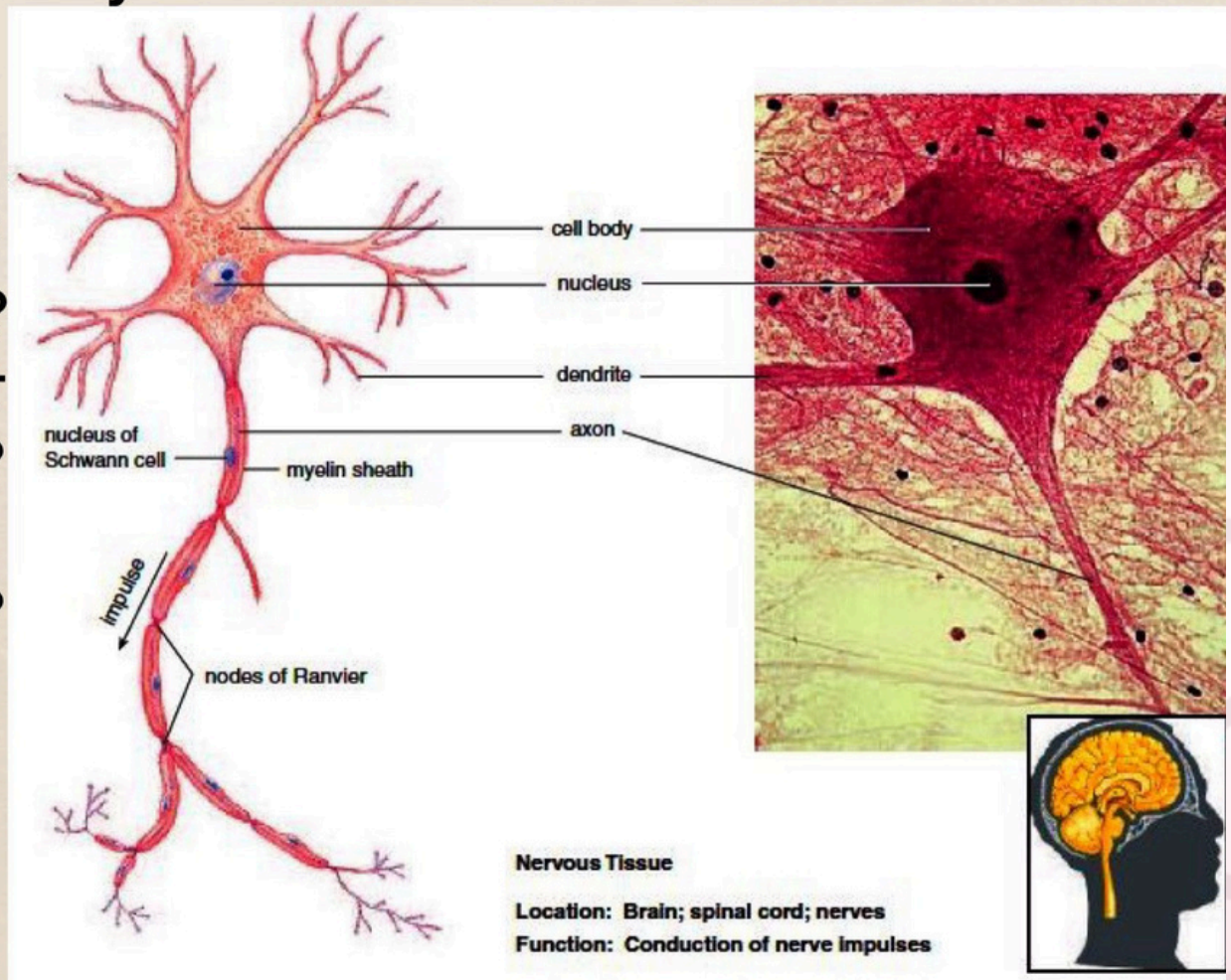
INTRODUCTORY STUDY OF NEURONS: STRUCTURE AND FUNCTION OF A NEURON

Introductory Study Of Neurons: Structure And Function Of A Neuron

1. Neurons only stay in the brain, right?
2. 3d models make it easier, don't they?
3. How was the study carried out?
4. And the project?
5. What do you concludes?



GREEN HYDROGEN GENERATOR USING RECYCLABLE MATERIALS AND PHOTOVOLTAIC SOURCE

Julio Cesar de Lima Silva[1], Fernando Guilherme Kaehler Guarda[2], Milene Vânia Kloss[3]

Abstract: Traditionally, humanity has relied on fossil fuels for energy generation, leading to excessive carbon dioxide emissions. Green hydrogen, produced through the electrolysis of water, offers an alternative. Electrolysis is a non-spontaneous process that uses an electric current to decompose a substance. For this, we assembled an electrolytic cell. The experiment utilized recyclable materials: coffee jar, distilled water, sodium hydroxide (NaOH) as the electrolyte, and stainless-steel electrodes from a printer. A photovoltaic system provided the necessary direct current. The hydrogen produced was collected through a hose, passing through a safety system before being released into the external environment. In electrolysis, sodium ions (Na+) and hydroxide ions (OH-) in the solution facilitate the conduction of electricity. These ions migrate towards the electrodes, carrying the electrical charge. At the anode (positive pole), water molecules (H2O) are oxidized, releasing oxygen gas (O2) and hydrogen ions (H+). At the cathode (negative pole), water is reduced, producing hydrogen gas (H2) and hydroxide ions (OH-). Green hydrogen, which generates water upon combustion, is a clean energy source. This experiment demonstrates that, with basic chemistry and electrical engineering principles, we can contribute to a more sustainable future by developing renewable energy technologies.

Keywords: Green Hydrogen. Hydrogen generator. Green energy.

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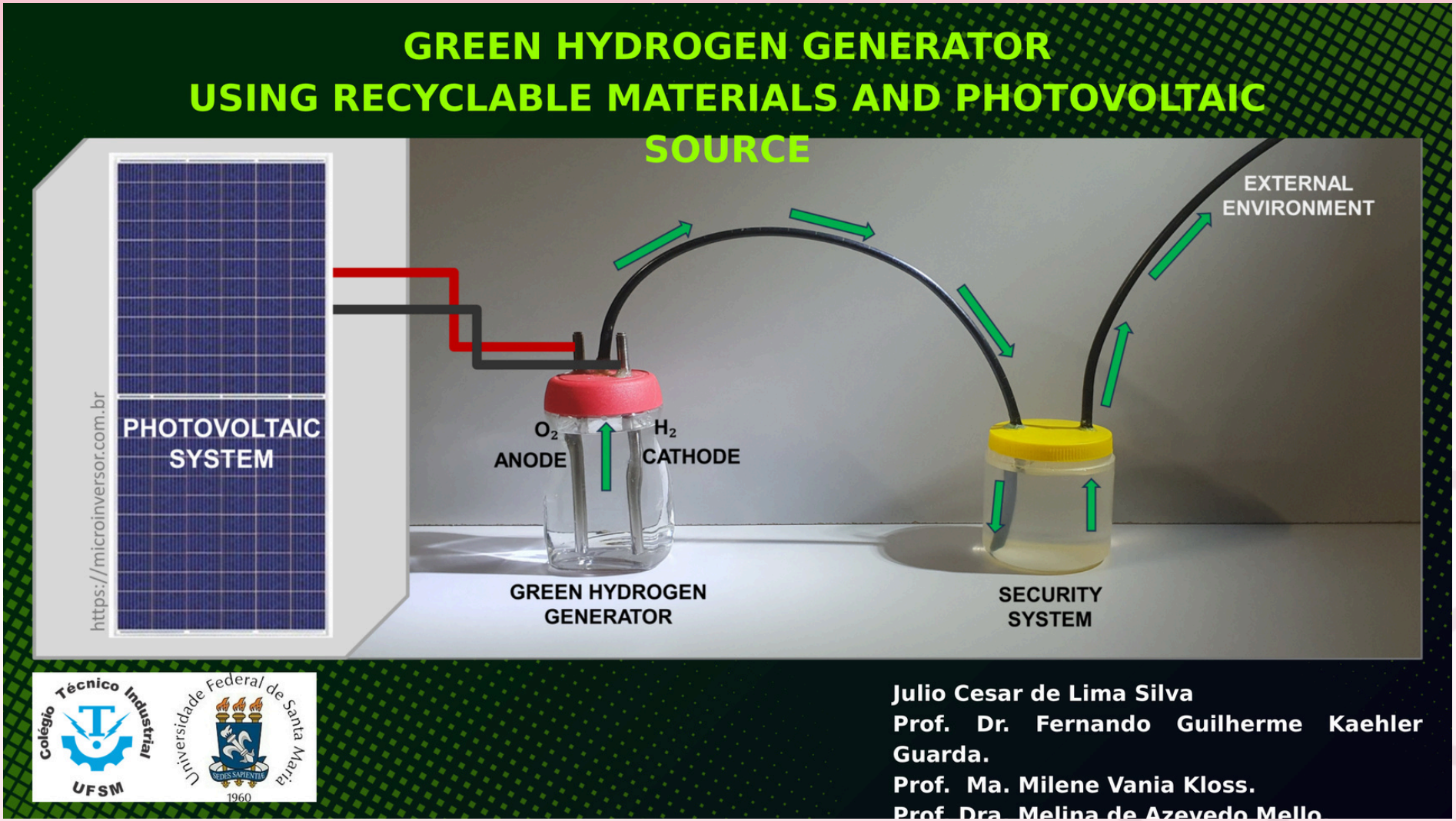
GREEN HYDROGEN GENERATOR USING RECYCLABLE MATERIALS AND PHOTOVOLTAIC SOURCE



LOAD ANALYSIS AND DEMAND CALCULATION

Letícia Rocha Freitas[1], Thiago Cattani Naidon [2], Milene Vânia Kloss[3]

Abstract: In this project, I develop the sizing of a three-phase transformer with a capacity of 750 kVA. This transformer is designed to operate with a primary voltage of 13.5 kV and a secondary voltage of 220 V, specifically for application in a building. The process begins with a detailed analysis of all installed loads throughout the building, including lighting, general-purpose outlets, and high-power equipment used within the infrastructure. Based on the data collected from these loads, I proceed to calculate the total demand of the installation, considering various demand factors and the specific power ratings associated with each piece of equipment. With these calculations, I determine the appropriate transformer power and specify the necessary conductors required for safe and efficient operation. Throughout the project, I carefully follow relevant technical standards to ensure compliance, safety, and efficiency in the system's design. The aim of this project is to provide an adequate and optimized power supply for the building, significantly enhancing the performance and reliability of its electrical system. This endeavor represents an essential practical application of electrical engineering knowledge for a second-year electrotechnics student, dedicated to optimizing building infrastructure and ensuring efficient energy use across all electrical loads.

Keywords: Transformer. Primary voltage. Secondary voltage. Power. Electrical system.

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DIRECT CURRENT MOTOR

Marco Antônio Somavilla[1], Frank Gonzatti[2], Milene Vânia Kloss[3]

Abstract: This study aims to improve our knowledge in the technical area of electrical circuits and develop our communication and group development characteristics. It consists of a direct current motor, created from some reused materials. Our motor works as follows: the first part is the rotor, which is allocated in the center of the motor. There are four magnets on the rotor and, on its sides, there are the field electromagnets. When the rotor magnets pass in front of the electromagnets, it is repelled by the magnetic field, while the armature winding detects the position of the magnet from the contact between the brush and the commutator. Among all these parts and components, the main and most efficient are the Rotor, Stator and Commutator. They make many things that we see and use in our daily lives, such as some types of elevators, and some models of electric cars and robotics, that perform their functions effectively and reliably, and are considered the "heart" of all electrical devices and machines.

Keywords: Magnetic. Direct Current. Electric. Electromagnets.

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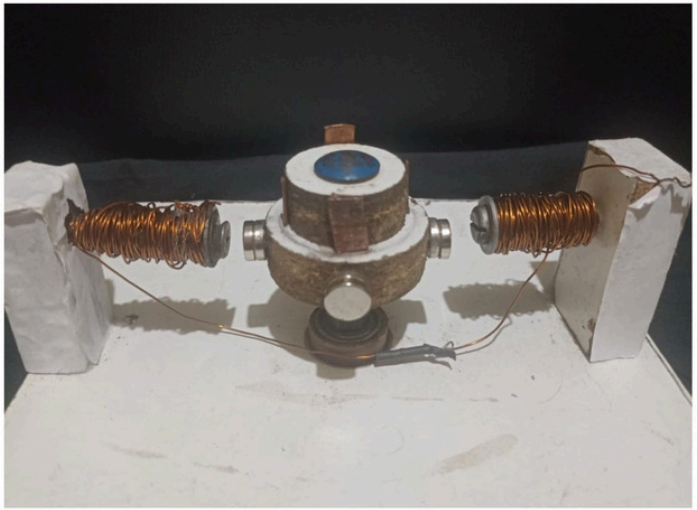
DIRECT CURRENT MOTOR

Motor DC

- justification: expensive options in the market and recycle materials
- Ideia: use recycled materials and create cheap options
- metodology: tests and installation

1-coil contruction:
2-rotor construction:
3- base construction:
4-assembly of parts:

- result: high rotation, cheap fabrication and high efficiency



HARDWARE COMPONENTS IN 3D

Miguel Pires Cardona[1], Fábio Teixeira Franciscato[2], Milene Vânia Kloss[3]

Abstract: In the XXI century, technology is evolving really fast, with the majority of the population not knowing about the machinery they're consuming. So, this project proposes to teach the different parts of the computer, with the purpose of showing the process behind this new evolving technology and trying a different methodology, highlighting the importance of knowing the technology around us. The project uses a VR (Virtual Reality) headset, which creates a virtual ambient that immerses the person using the headset into this ambient, where the audience can watch a 3D video: in the video, the person using the headset can look around and listen to the explanation given by the students, which was recorded with a 3D camera and is going to be three minutes long. This video summarizes the components of the computer - CPU, Motherboard, Random-access memory, GPU, SSD/HD and the computer font. We expect to reach a wide audience, from the youngest to experts, by using a different methodology, turning the knowledge into an experience.

Keywords: Virtual Reality. Videoclass. Computer Hardware.

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HARDWARE COMPONENTS IN 3D

UFSM

HARDWARE COMPONENTS IN 3D

Miguel Pires Cardona Fábio Teixeira Franciscato Milene Vânia Kloss

Objective: teach the different parts of the computer, with the purpose of showing the process behind this new evolving technology and trying a different methodology by using Virtual Reality.

- Why are we using Virtual Reality?
- How it works?

Results: We presented this project for two days, and we realized that Virtual Reality was an immersive way to teach the public about how the computer works.

MOTHBALLS ELEVATOR

Pedro H.C. Peçanha[1], Viviane Dal Molin[2], Milene Vânia Kloss[3]

Abstract: The purpose of this study is to share some knowledge about the density of a material. Through this schoolwork, it is demonstrated how the density of a material can be changed when mixed with some other substances. For this experiment, four main ingredients were used: water, vinegar, baking soda, and some mothballs. The results showed that carbon dioxide is produced due to a chemical occurrence between vinegar and baking soda. When the mothballs reach the surface, the gas is released and they descend again, creating a mothball elevator. During this process, it is necessary to take some precautions: do not smell the mothballs and be sure to handle the mothballs with latex gloves or laboratory tongs, as it may cause skin or breathing irritations. It is also recommended to leave at least half of the volume of the container free, as the liquid may overflow with the production of gas. This project is a very interesting way to challenge students in doing some Chemistry experiments and testing reactions, besides students gain experience and maturity with this kind of scientific practice, being more confident and motivated to perform other future experiments.

Keywords: Density of materials. Elevator. Mothballs. Chemistry reactions.

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MOTHBALLS ELEVATOR

MOTHBALLS ELEVATOR

=

CHEMMICAL REACTION :

CO_2 ($CH_3COOH(aq) + NaHCO_3(aq) \rightarrow CH_3COONa(aq) + H_2O(l) + CO_2(g)$)

MATERIALS:

-Water
-Baking soda
-Vinegar
-Mothballs
-Transparent cup

PEDRO HENRIQUE COSTEIRA PEÇANHA

ELETROTECHNICS - 421 GROUP

SIMULATION OF RAINWATER VOLUME CONTROL IN CISTERNS

Vitória Reis dos Santos[1], Julia Baraldi Grigoletto, Heitor Nunes Kloss, Guilherme Sarzi Sartori Viero; Marco Aurelio Bandeira[2], Rojas Lima (participant), Thiago Cattani Naidon (participant), Sergio Adalberto Pavani (participant); Milene Vânia Kloss[3]

Abstract: This is an interdisciplinary project that integrates three technical areas: Electro-Technic, Mechanics and Informatics. Students from *Colégio Técnico Industrial de Santa Maria (CTISM/UFSM)* are engaged in this project, which was originally aiming to treat stream water. The actual and modified system collects rainwater through a fixed gutter, directing it to a cistern, using a movable pipe. A sensor detects when the cistern reaches its maximum capacity, prompting the pipe to divert excess water to another cistern. This includes a mobile app for real-time water level monitoring, preventing overflow. The process uses Arduino, which recognizes the maximum volume of the cistern through sensor readings. When activated, the sensor sends a feedback to the Arduino, and this allows the command to divert the water flow. This project incorporates knowledge from mechanics, concerning the pipe movement and its connection to the gutter. Electro-Technics are responsible for the sensors and electrical signals. Informatics knowledge is applied through the development of the mobile application. This work also draws on foundational knowledge, such as mathematics and chemistry, especially when concerning environmental issues. Furthermore, there are plans to extend the project to make rainwater potable for human consumption.

Keywords: Environment. Rainwater. Cistern. Arduino.

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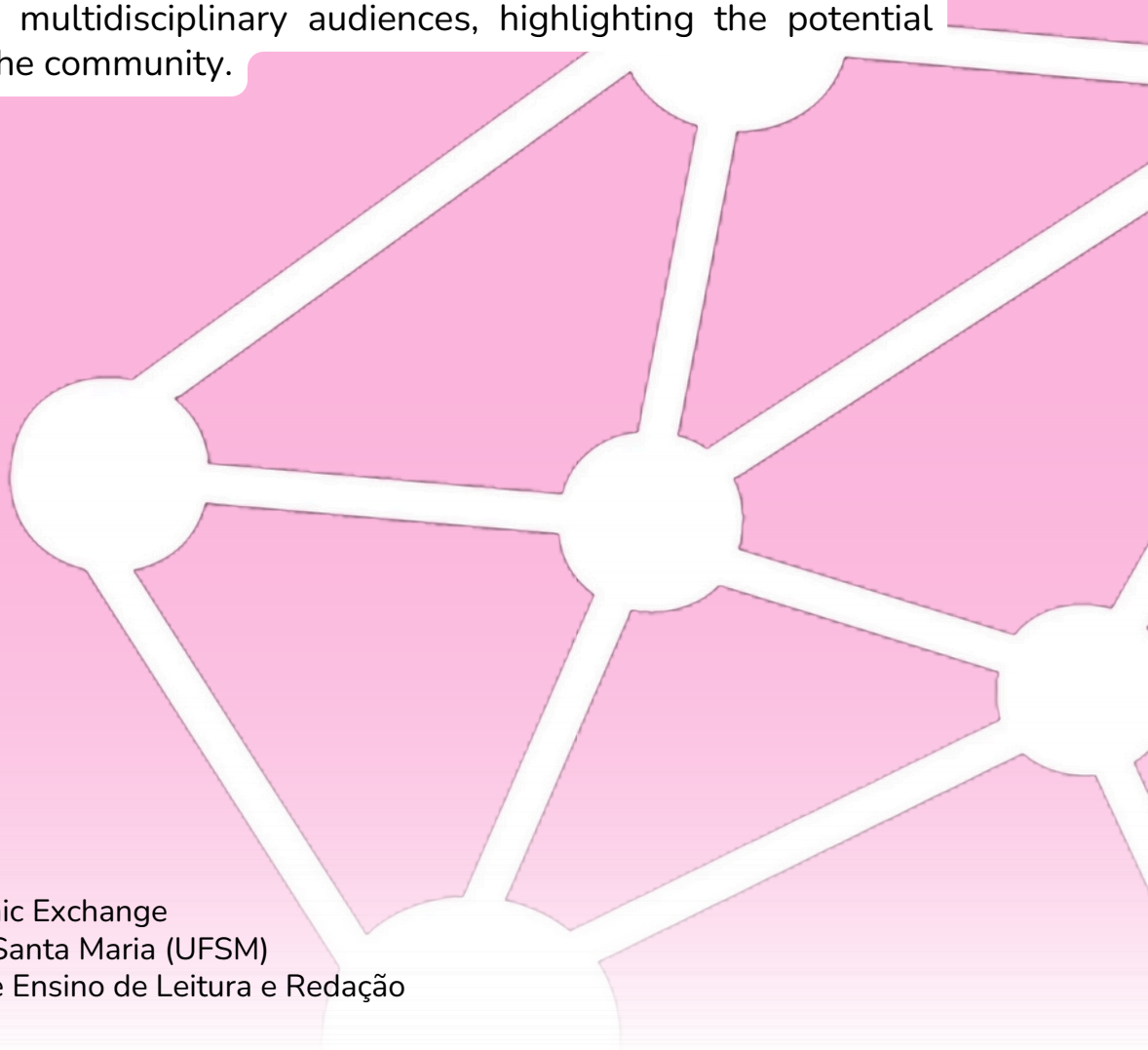
SAE
HIGHER EDUCATION

SAE Higher Education is aimed at non-Anglophone undergraduate and graduate students from UFSM. Novice researchers are challenged to present their works (conducted within research projects in their field of study) in English, in up to five minutes, in an engaging way, so that it can be understood by a non-specialist academic audience. The event aims to 1) foster academic literacies in English; and 2) develop novice scientists' ability to present their research to multidisciplinary audiences, highlighting the potential impact for the community.



IV Symposium of Academic Exchange
Universidade Federal de Santa Maria (UFSM)
Laboratório de Pesquisa e Ensino de Leitura e Redação
(LabLeR)

ANTI-VACCINATION DISCOURSE IN THE COVID-19 PANDEMIC: CONSTITUTION, FORMULATION AND CIRCULATION OF MEANINGS.

Ana Luyze dos Santos Calegaro[1], Caciane Souza de Medeiros[2]

Abstract: The ongoing research analyzes the anti-vaccination discourses that emerged in the media after the start of the Covid-19 pandemic in 2020. We use media clippings as analytical material to identify the meanings and discursive positions on vaccination in the relationship between individuals and society. Our goal is to understand how the anti-vaccination discourse influences social perceptions. In addition to addressing the specific impact on the Covid-19 vaccine, we also investigate how this discourse affects the perception of other vaccines that are already part of the social and scientific context in Brazil. To enrich our understanding, we propose a historical examination of the formation of this discourse in Brazilian magazines, in order to analyze how meanings are constructed and consolidated in the collective imagination. With this project, we seek to reflect on the meanings that have permeated different historical moments in the construction of anti-vaccine discourse, highlighting the manifestations of anti-science discourse in the media. Our theoretical-methodological basis is based on the reading and analysis of discourse, considering it an effect of meaning among speakers (PÊCHEUX, 2009), and recognizing that language is not transparent (ORLANDI, 2012).

Keywords: Ideology. Memory. Discourse.

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ANTI-VACCINATION DISCOURSE IN THE COVID-19 PANDEMIC: CONSTITUTION, FORMULATION AND CIRCULATION OF MEANINGS.

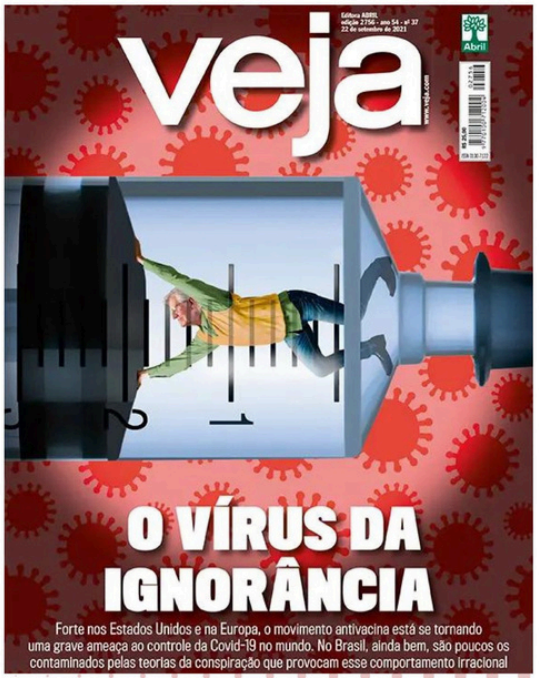
ANTI-VACCINATION DISCOURSE IN THE COVID-19 PANDEMIC: CONSTITUTION, FORMULATION AND MEANINGS

Student: Ana Luyze dos Santos Calegaro
Professor: Dr. Caciane Souza de Medeiros

- **INTRODUCTION**

This analysis uses the conceptual triad as its main basis for its implementation: constitution, formulation and circulation of meanings.

- OBJECTIVES;
- METHODOLOGY;
- YESTERDAY: HISTORY OF ANTI-VACCINATION;
- BRAZILIAN MEDIA PRODUCTION CONDITIONS;
- GESTURE OF ANALYSIS: IGNORANCE OR DENIALISM?
- MEDIA REPRODUCTION.



ANALYSIS OF ENERGY LOSSES IN SOLAR POWER PLANT TRANSFORMERS

Ana Paula Bastianello[1], Vitor Cristiano Bender[2]

Abstract: Transformers are very important electrical devices because they have the function of increasing or decreasing the voltage of electrical energy. This is essential for energy to reach everyone in the right way. However, with the growth of renewable energy sources such as solar and wind power, new challenges have arisen for this equipment. The inverters that connect these renewable sources to the electricity grid can cause changes in the voltage and current waves, creating what we call “harmonic distortions”. These distortions can result in energy losses in the transformers, making them work less efficiently and reducing their useful life. To combat these losses, shielding is used to help regulate the energy and minimize the negative effects of distortions. This study examines how these distortions affect a transformer used in a solar power plant and analyzes the effectiveness of shields in reducing energy losses. Using simulations, the research seeks to better understand how these shields work and how they can be improved. The results could help manufacturers create more efficient transformers, extending their useful life, reducing maintenance costs and increasing the reliability of electricity networks.

Keywords: Power transformers. Energy efficiency. Harmonic distortions.

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GENDER IDEOLOGY AND POLITICAL-MEDIA CURRICULARIZATION

Andrei Rodrigues Lopes[1], Joacir Marques da Costa[2]

Abstract: The notion of gender, developed in feminist studies, seeks to understand how distinctions, previously based on "sex", occur mainly in social and political practices, challenging the idea that these differences are only biological. Several feminist currents have produced a vast literature that, from different perspectives, explores the theme and contributes to gender and sexualities studies. These studies have always generated debates in the field itself and aversion from certain institutions, especially those aligned with religious neoconservatism, which defend a bio-sex-gender alignment. Any contrary thought is seen as an enemy. Part of the feminist production exposes elements of this counter-response to gender studies, evidencing the relations of power and knowledge in discursive practices. In 2014, during the construction of the National Education Plan (PNE 2014-2024), the term "Gender Ideology" emerged in the political debate, brought up by social actors such as politicians and religious people, taking the form of an enemy of the "traditional Brazilian family". For this work, we aligned ourselves with writings that help discuss education, curriculum and discourse. We present here an excerpt from a work that maps discursive practices in Law Projects in the House of Representatives that create regimes of truth about "Gender Ideology".

Keywords: Gender Ideology. Discourse. Cartography. Laws.

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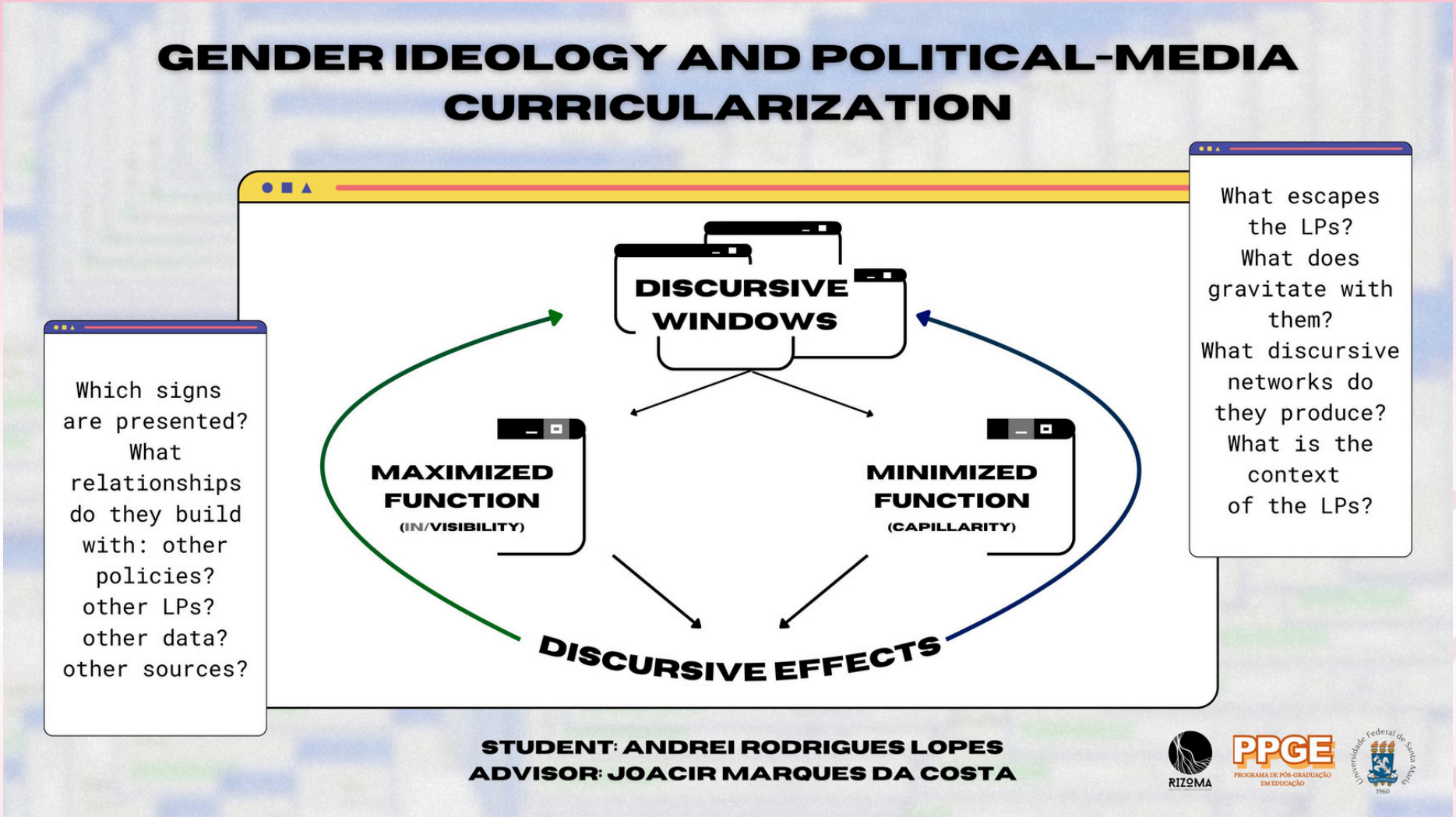
GENDER IDEOLOGY AND POLITICAL-MEDIA CURRICULARIZATION



TEACHER EDUCATION: TRENDS AND PROPOSITIONS OF INTERNATIONALIZATION IN THE GLOBAL SOUTH

Andressa de Senne Cargnin[1], Ana Carla Hollweg Powaczuk[2],
Doris Pires Vargas Bolzan[3]

Abstract: The study focuses on the internationalization of higher education, considering it a key element for teacher education in the emerging context in which we are living. The pursuit of global standards of excellence, the promotion of cultural diversity, and integration into international research networks emerge as pillars for academic development. Therefore, the investigation aims to identify internationalization experiences directed towards teacher education, understood as educational experiences and practices developed in international contexts that influence both teacher education and practice. These practices have played a central role in aligning Brazilian higher education with global demands. Thus, the study aims to identify policy propositions and models that promote the internationalization of teachers. "It analyzes their applicability and relevance in the Global South, identifies challenges and opportunities for adoption in higher education institutions, and contributes to strengthening teacher education. Currently, the work is in its first phase, dedicated to a systematic literature review, establishing a solid theoretical foundation for subsequent analysis. The next phase will include interviews with specialists in the field, aiming to enrich the research with practical and theoretical insights. This study seeks to provide a comprehensive understanding of internationalization practices in teacher education and propose recommendations that can be applied.

Keywords: Global South. Higher education. Internationalization. Teacher education.

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TEACHER EDUCATION: TRENDS AND PROPOSITIONS OF INTERNATIONALIZATION IN THE GLOBAL SOUTH

IV Symposium of Academic Exchange

TEACHER EDUCATION: TRENDS AND PROPOSITIONS OF INTERNATIONALIZATION IN THE GLOBAL SOUTH

Andressa de Senne Cargnin
Advisor: Ana Carla Hollweg Powaczuk
Co-advisor: Doris Pires Vargas Bolzan

Focuses

- On the **internationalization** of **higher education**, considering it a key element for teacher education in the emerging context.
- The investigation aims **to identify internationalization experiences directed towards teacher education**, understood as educational experiences and practices developed in international contexts **that influence both teacher education and practice**.

Justification

- These practices have played a central role in aligning Brazilian higher education with global demands. Thus, **the study aims to identify policy propositions and models that promote the internationalization of teachers**. "It analyzes their applicability and relevance in the Global South, **identifies challenges and opportunities** for adoption in higher education institutions, and **contributes to strengthening teacher education**.

Methodology

- **Currently**, the work is in its **first phase**, dedicated to a **systematic literature review**, establishing a solid theoretical foundation for subsequent analysis.

Next phase/Results

- The next phase **will include interviews with specialists in the field**, aiming to enrich the research with **practical and theoretical insights**.
- **This study seeks to provide a comprehensive understanding of internationalization practices in teacher education and propose recommendations that can be applied.**

TRANSFORMATION OF SALMON RESIDUES INTO A HIGH VALUE-ADDED BY-PRODUCT

Bianca Campos Casarin[1], Silvino Sasso Robalo[2], Alexandre José Cichoski[3]

Abstract: Global fish consumption has been growing considerably due to the growing demand for protein and the nutritional benefits of this food. However, the industrialization of fish generates waste, such as viscera, heads, skin and spines that contain attached meat. The improper disposal of this waste is a cause for concern, due to the waste of protein and also because it contributes to environmental pollution. In order to overcome this situation, researchers are seeking alternatives to transform this waste into high-value-added byproducts that can be used in food production. In this context, in partnership with a local Japanese restaurant, this study was developed with the aim of reusing the waste generated by filleting salmon, transforming it into a high-value-added byproduct. Microbiological and physical-chemical analyses will be performed on the waste, the byproduct obtained and the food produced. If the food is considered safe, a sensory analysis will be performed in order to obtain information on consumer acceptance. The results of this work will provide important information not only for the academic community, but will also enable the commercialization of this food by the partner company, allowing the use of the filleting waste and reducing protein waste and environmental pollution.

Keywords: Fish. Residues. Waste. By-product. Food.

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TRANSFORMATION OF SALMON RESIDUES INTO A HIGH VALUE-ADDED BY-PRODUCT

UNIVERSIDADE FEDERAL DE SANTA MARIA
PROGRAMA DE PÓS-GRADUAÇÃO EM CIÊNCIA E TECNOLOGIA DOS ALIMENTOS
PPGCTA

TRANSFORMATION OF SALMON RESIDUES INTO A HIGH VALUE-ADDED BY-PRODUCT

Bianca Campos Casarin

Global fish consumption is increasing due to the demand for protein and its nutritional benefits, but industrialization generates waste.

Objective:
Reusing the waste generated by filleting salmon, transforming it into a byproduct

Results:
A safe product for consumption and approved by the consumer public is expected

Methods:
Ultrasound treatment, microbiological and physical-chemical analysis

Importance of research:
The research will contribute to innovation in the food industry and academic knowledge

TEACHING MALAISE: KNOWLEDGE AND ACTIONS THAT IMPACT ON THE WORK OF UNIVERSITY PROFESSORS

Bibiana Passinato Piovesan[1], Doris Pires Vargas Bolzan[2]

Abstract: Knowledge and practice in university teaching have been the focus of many studies, both nationally and internationally. These concerns permeate the educational times and spaces in which university teachers find themselves. At university, this teaching work takes on great variation and complexity, given the various factors that permeate the knowledge and actions of teaching. The circumstances of an institutional culture that are related to other instances of teacher activity, such as the university quadripod, demand many responsibilities of these teachers, as well as a large workload. Thus, beyond the classroom, university professors are required to meet these demands and the contexts that arrive at the university, implying the way in which teaching work is organized. In view of this, this study is justified by the significant deterioration in the conditions in which teachers work, in which stress in the workplace gives rise to and triggers intense feelings of a teaching identity crisis. Given that these professionals are fundamental agents in the teaching and learning processes, it is essential to understand how this malaise is impacting on the knowledge and actions of university teachers and thus be able to highlight possibilities that can help mitigate teacher illness.

Keywords: Teaching. Higher Education. Emerging contexts. Teacher malaise.

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TEACHER DISCONTENT: KNOWLEDGE AND PRACTICES WHICH IMPACT THE WORK OF UNIVERSITY PROFESSORS

Bibiana Passinato Piovesan[1], Doris Pires Vargas Bolzan[2]

Abstract: Knowledge and practices in/of university teaching have been the focus of many studies both nationally and internationally. These concerns permeate the educational times and spaces in which university professors are embedded. In the university context, teaching work has great variability, and complexity due to the various factors that influence knowledge and practices in/of teaching. The circumstances of institutional culture, which are related to other facets of the professor's activities, such as the university's fourfold mission, impose numerous responsibilities on these teachers, along with a substantial workload. Thus, beyond the classroom, university professors face the demand to meet these expectations, and the contexts that reach the university affect the organization of their teaching work. Given this, the study is justified by the significant degradation of teaching conditions, where stress in the work environment triggers and intensifies feelings of a crisis in professional identity. Since these professionals are key agents in the processes of teaching and learning, it is essential to understand how this discontent is affecting knowledge and practices in/of university teaching and, therefore, highlight possibilities that could help mitigate the teacher's distress.

Keywords: Teaching. Higher Education. Emerging Contexts. Teacher Discontent.

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TEACHER DISCONTENT: KNOWLEDGE AND PRACTICES WHICH IMPACT THE WORK OF UNIVERSITY PROFESSORS

IV Symposium of Academic Exchange

TEACHER DISCONTENT: KNOWLEDGE AND PRACTICES WHICH IMPACT THE WORK OF UNIVERSITY PROFESSORS

Bibiana Passinato Piovesan[1]

Doris Pires Vargas Bolzan[2]

In the university context, teaching work has great variability, and complexity due to the various factors that influence knowledge and practices in/of teaching. The circumstances of institutional culture, which are related to other facets of the professor's activities, such as the university's fourfold mission (Teaching, research, extension and management), impose numerous responsibilities on these teachers, along with a substantial workload.

Given this, the study is justified by the significant degradation of teaching conditions, where stress in the work environment triggers and intensifies feelings of a crisis in professional identity.

Objective: to understand teacher malaise, based on teaching work and professional development, in emerging contexts.

Since these professionals are key agents in the processes of teaching and learning, it is essential to understand how this discontent is affecting knowledge and practices in/of university teaching and, therefore, highlight possibilities that could help mitigate the teacher's distress.

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PLANT-BASED PÂTÉ WITH OLIVE PULP: A NEW SUSTAINABLE PRODUCT

Camila Sant'Anna Monteiro[1], Tatiana Emanuelli[2]

Abstract: In recent years, olive cultivation has gained increasing prominence in the Brazilian economy, especially in the state of Rio Grande do Sul, where the climate is conducive to olive tree cultivation. With the rise in olive oil production, the generation of waste from this process has also increased, leading to its main byproduct: olive pulp. This study aimed to formulate a plant-based pâté incorporating olive pulp into the formulation and evaluate the fat content. Five formulations of the product were created using green banana biomass and sunflower oil as the base. The fat content and fatty acid profile were analyzed. The pâtés showed a higher proportion of polyunsaturated fatty acids (PUFAs) (48.1-54.3%) and monounsaturated fatty acids (MUFAs) (33.7-38.3%) compared to saturated fatty acids (SFAs) (12.0-13.6%). However, the proportion of linoleic acid (C18:2 n-6) in the formulations with 10% and 20% olive pulp (46.2%-51.1%) was reduced compared to the control (52.0-54.4%, $p<0.05$). Oleic acid (C18:1 n-9) was the main MUFA (33.6-37.9%) found in the pâtés. The application of olive pulp in the formulations demonstrates its potential as a valuable functional resource, leveraging the high nutritional value of this waste and highlighting its sustainable use in the food industry.

Keywords: .Plant-based pâté. Food products. Product development.

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INITIAL TEACHER TRAINING OF SPECIAL EDUCATION TEACHERS FOR COLLABORATIVE TEACHING

Cíntia Bissacotti[1], Sílvia Maria de Oliveira Pavão[2]

Abstract: It is assumed that collaborative teaching is essential to promote the inclusion process in schools. Therefore, it requires initial teacher training that develops the necessary skills to implement this practice within the education system. The research aims to understand the curricular competencies involved in the initial training of Special Education teachers for Collaborative Teaching. To achieve this, a qualitative case study will be conducted, with data collection taking place in the second half of 2025. The information will be gathered through semi-structured interviews with professors from the Federal Universities of Santa Maria and São Carlos. Data analysis will follow Bardin's (1979) Content Analysis method. It is expected that the results will expand opportunities for training on Collaborative Teaching, helping to improve the quality of teaching in inclusive schools. Preliminary conclusions emphasize the importance of incorporating this approach as a key component in teacher education curricula, in order to meet the needs of inclusive education. The research will have significant implications for enhancing educational practices and policies aimed at inclusion, offering valuable contributions to the development of a more collaborative and effective education system.

Keywords: Initial teacher training. Special Education. Collaborative Teaching. Inclusion.

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INITIAL TEACHER TRAINING OF SPECIAL EDUCATION TEACHERS FOR COLLABORATIVE TEACHING

INITIAL FORMATION OF SPECIAL EDUCATION TEACHERS FOR COLLABORATIVE INSTRUCTION

Cíntia Bissacotti

Sílvia Maria de Oliveira Pavão

Introduction

❖The study presupposes that collaborative is very important to help the inclusion process in schools. So, it requires initial teacher formation that develops the necessary skills to implement this practice in the system educational.

Objectives

❖Comprehend the competencies curricular involved in the formation teacher of Special Education teachers for Collaborative Instruction.

Results expectd

❖ The results are expected to expand formation opportunities in Collaborative Instruction, contributing to improvement the quality of education in inclusive schools.

implication

❖The study will be significant for the improvement of practices and policies educational focused on inclusion, offering important contributions for the progress of a system educational more collaborative and effective.

Methodology

Qualitative case study

Semi-structured interview

Professors at the Federal Universities of Santa Maria and São Carlos

ARCHIVES OF SEXUALITY AND GENDER: IMPLICATIONS IN THE FIELD OF EDUCATION AND ART FROM THE PHILOSOPHIES OF DIFFERENCE

Denise Meller Losekann[1], Marilda Oliveira de Oliveira[2]

Abstract: Researches on sexuality and gender in the field of Education and Art hold significant importance, as it promotes a critical understanding of the cultural and social dynamics that shape identities and human relationships. Therefore, this work aims to problematize – aligned with philosophies of difference – archives of sexuality and gender in the field of Education and Art. To achieve this, it was employed the archive/world research method, proposing a mapping of articles published in Brazilian scientific journals. It also sought to adhere to the themes of CNPq (T4 - Art and society: memory and technologies; T5 - Culture and innovative education; and SDG 4 – Quality education; SDG 5 – Gender equality). The relevance of this study is evident in its contribution to promoting a fairer, democratic, and plural society. It fosters a critical and questioning perspective on universalizing social norms and hierarchies. It encourages the creation of spaces where difference and multiplicity are respected, and it promotes the integral development of individuals who are conscious of their identities and the social and cultural environment in which they live. Addressing this theme in the field of education and art can impact learning processes and contribute to citizenship and respect for human rights.

Keywords: Sexuality and Gender. Education and Art. Archive. Philosophies of Difference.

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ARCHIVES OF SEXUALITY AND GENDER: IMPLICATIONS IN THE FIELD OF EDUCATION AND ART FROM THE PHILOSOPHIES OF DIFFERENCE

ARCHIVES OF SEXUALITY AND GENDER: IMPLICATIONS IN THE FIELD OF EDUCATION AND ART FROM THE PHILOSOPHIES OF DIFFERENCE

Denise Meller Losekann; Marilda Oliveira de Oliveira

Introduction

The researches on **sexuality and gender** in the **field of Education and Art** holds **significant importance**, as it **promotes a critical understanding** of the cultural and social dynamics that shape identities and human relationships.

Objective

This work aims to **problematize** – aligned with philosophies of difference – **archives of sexuality and gender** in the field of Education and Art.

Adhere to the themes of **CNPq**: (T4 - Art and society: memory and technologies; T5 - Culture and innovative education;

And **SDGs of the United Nations**: SDG 4 – Quality education; SDG 5 – Gender equality).

Methodology

The **archive/world** research method, proposing a **mapping of articles** published in Brazilian scientific journals.

Relevance of the study

It contributes to **promoting a fairer, democratic, and plural society.** Promotes a **critical and questioning perspective** on social norms and hierarchies. It **encourages multiplicity and respect** and can impact learning processes and contribute to **respect for human rights**.

IDENTIFICATION OF PARTIAL DISCHARGE PATTERNS USING AN ACOUSTIC IMAGER

Dienifer Elizabeth Moraes[1], Aécio de Lima Oliveira [2]

Abstract: Partial Discharges (PDs) are phenomena characterized by small electrical discharges that occur in insulating materials, without completely breaking the insulation barrier between conductors. They usually arise due to degradation or defects in the components of the electrical network, compromising the integrity of the equipment over time. There are three main types of PDs: internal discharges (within the insulating material), surface discharges (on the surface of insulators), and corona discharges (around conductors under high voltage). Monitoring PDs is essential for assessing the integrity of substations and transmission lines. A promising methodology for their detection is the use of acoustic equipment, which captures ultrasonic signals generated by the discharges, identifying specific frequencies and patterns. The research in question proposes the use of an acoustic imager and a signal generator to analyze the PDs. Variations in distance between the emitter and the imager aid in the creation of a database containing patterns of discharges. The experiments utilized videos captured and processed by the equipment's software, providing a diagnosis of the discharges. The analysis considered different frequencies and waveforms, allowing for the identification of patterns that assist in the development of new methods for inspecting PDs.

Keywords: Partial Discharges. Insulating Materials. Substations and Transmission Lines. Acoustic Imager.

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NOTO TSUNAMI: THE SURVIVAL OF THREE JAPANESE AMPHIBIANS

Diogo Alves da Silveira[1], Álvaro Augusto Mainardi[2], André Passaglia Schuch[3]

Abstract: Amphibians are the most threatened group of vertebrates in the world. These creatures face several challenges, such as a fungal pandemic, invasive species, pesticide use, habitat loss due to farming, deforestation and climate change. One of the many effects resulting from climate change is an increase in extreme adverse climatic events such as intense rainfall and flash floods. This array of problems, combined with the lack of funding for conservation efforts, leads to a devastating loss of biodiversity. So how can we better direct our efforts in a reliable and calculated manner, knowing where and which species have been most affected? We present a possible method to measure the impact of flooding caused by the Noto tsunami of 2024 on three endangered amphibian species in the region. We expect that by using species distribution models, a mathematical method for evaluating where certain species can inhabit based on environmental data, and the creation of a "Flooding Variable" utilizing satellite imaging, we can estimate the probability of habitat loss for the species before and after the tsunami. This will allow us to guide the allocation of funds and conservation studies to specific points, while also directing field evaluations.

Keywords: Amphibian. Climate Change. Flash Floods. Species Distribution. Satellite Imaging.

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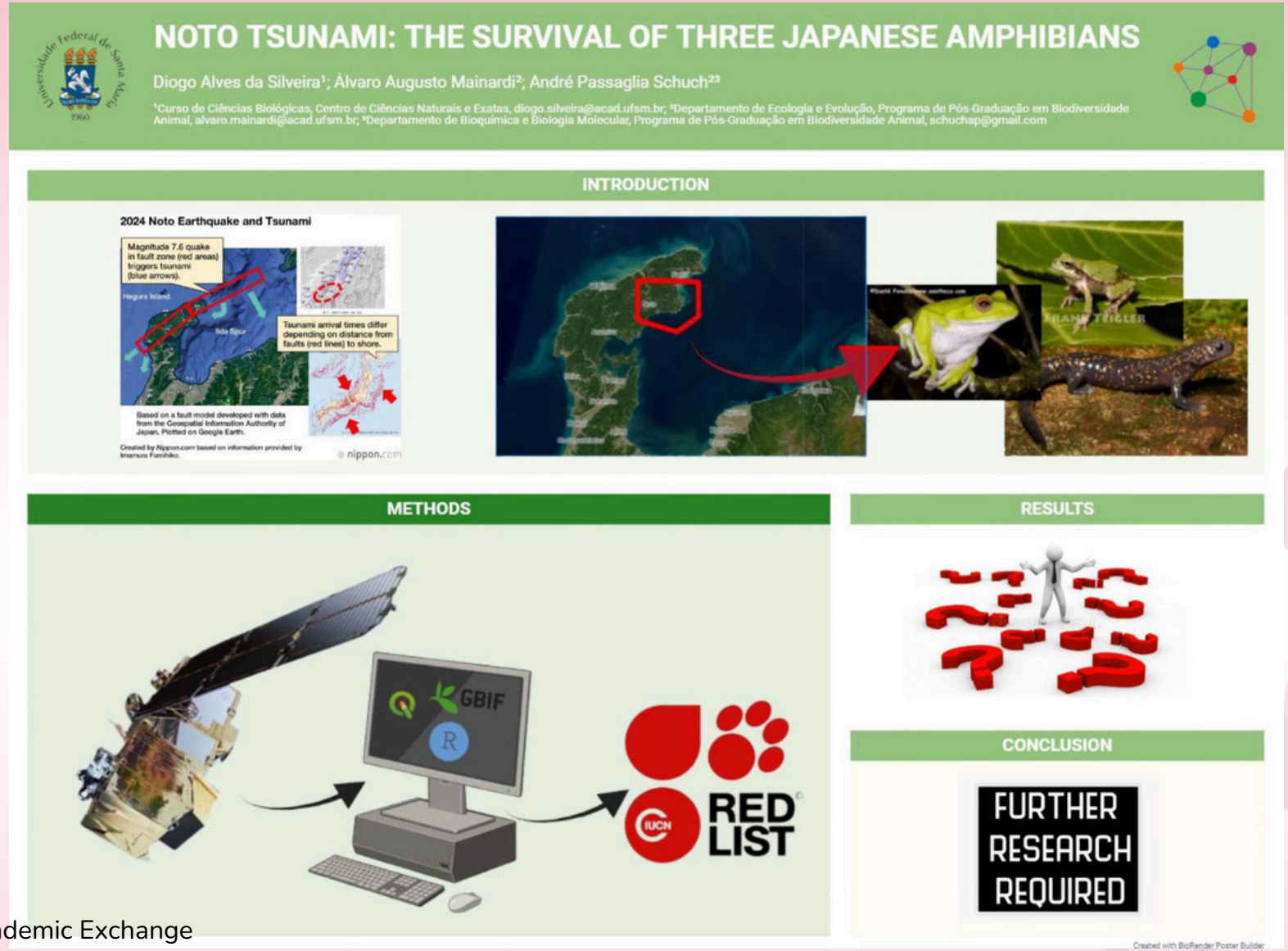
NOTO TSUNAMI: THE SURVIVAL OF THREE JAPANESE AMPHIBIANS



SPECTROSCOPY ANALYSIS OF FECES TO ESTIMATE NUTRITIONAL PARAMETERS OF GRAZING CATTLE

Eliana Bordin Dutra[1], Eduardo Bohrer de Azevedo[2]

Abstract: Monitoring the nutritional condition of grazing cattle is a fundamental and complex task, and an alternative that allows greater practicality and rapid response is the use of fecal marker. Thus, the objective of this study is to develop fecal near-infrared spectroscopy (fNIRS) technology to estimate nutritional parameters of cattle under grazing conditions. The database currently has 78 fecal samples from cattle fed native grassland from the Pampa Biome and ryegrass, with the experiments being carried out under controlled conditions allowing the construction of standard curves. After fecal collection, the samples were dried, ground, analysed in the laboratory and read on a NIRSFOSS 5000 equipment. The models were developed by Partial Least Squares (PLS) regression. The equation for dietary protein content presented an R2 of 0.96 and 0.88 for digestibility. The fNIRS has potential for field application, aiming to reduce the response time for beef cattle farmers regarding the diet of their herd. However, it is essential to add new samples to the database, aiming to improve the quality of the models and the representativeness of the conditions of the livestock production system of the Pampa Biome.

Keywords: Fecal marker. Livestock production. Pampa Biome. Spectroscopy.

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DESIGN AND ERGONOMICS: PROJECT OF AN ERGONOMIC ACCESSORY FOR DENTAL INSTRUMENTS

Fernanda Martins de Brum[1], Carolina Iuva de Mello[2]

Abstract: This work describes the initial stages of developing an accessory designed to improve the ergonomics of dental instruments. Given that many oral health professionals develop occupational diseases throughout their careers, studying the ergonomic aspects of the activity becomes relevant to minimize potential health damage. From this context, an accessory was designed to be adjustable to the instruments, improving the ergonomics of their grip. The design methodology used was the Double Diamond, proposed by the Design Council of the United Kingdom. This approach consists of alternating divergent and convergent phases, starting from problem identification to reaching the ideal solution. Initially, the problem is broadly explored (divergent phase), followed by a more precise definition (convergent phase). This cycle is repeated for idea generation and later for selecting and refining the solution that best meets the identified opportunity. Currently, the project is in the mockup creation phase for testing with the target audience. After these iterations, the accessory will be refined and validated through functional and interdisciplinary analyses, involving occupational therapy and rheumatology professionals to ensure its ergonomic effectiveness.

Keywords: Design. Ergonomics. Odontology. Accessory.

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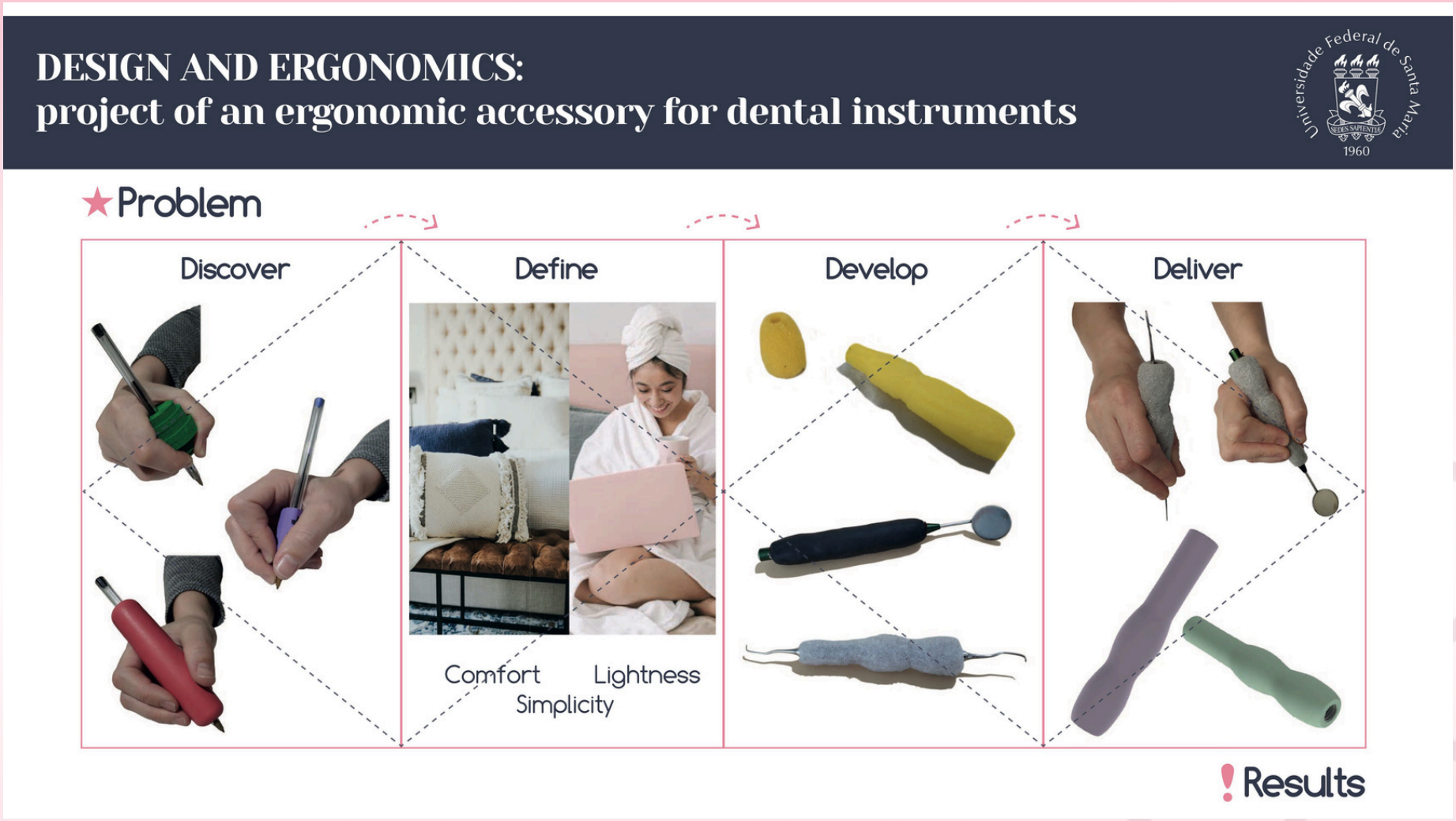
DESIGN AND ERGONOMICS: PROJECT OF AN ERGONOMIC ACCESSORY FOR DENTAL INSTRUMENTS



RESEARCH ON THE PERSPECTIVE OF UFSM STUDENTS ON THE JOURNALISTIC COVERAGE OF THE FLOODING IN RIO GRANDE DO SUL

Giulia Pinós Maffi[1], Carolina Tonelotto Lorenzoni[2]

Abstract: This research presents an analysis of the perceptions of UFSM students regarding the news coverage of the floods that occurred in Rio Grande do Sul last May. The study aimed to understand how students obtained information and analyze their perception regarding the quality and scope of media coverage. To collect data, an online questionnaire was elaborated and made available via the Google Forms platform, with approximately 15 questions, and divided into three parts: profile of the respondents; coverage provided by mass media (television, print newspapers, or radio); and coverage provided through social media. As a result, the survey received 371 responses. The analysis indicated that most students considered the coverage to be reasonable or good, although the perception of fake news and the divergence of information between mass media and social media are still recurring issues. Regarding social media, Instagram and WhatsApp were the platforms most used by students. This study not only contributes to the academic understanding of news coverage in disaster situations, but also offers practical recommendations to improve the quality and effectiveness of coverage of similar events in the future, as well as providing a reflection on how society consumes news in these situations.

Keywords: Disaster coverage. Public opinion research. Mediatization. Climate crisis.

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SOUL HUES: EXPRESSIONS OF THE FEMININE IN EDUCATION AND TEACHING

Hannah dos Santos Rossatto[1], Valdo Hermes de Lima Barcelos[2]

Abstract: The research is part of an ongoing Master's Dissertation in the Postgraduate Program in Education (UFSM-CE), within the Teaching, Knowledge, and Professional Development Line (LP1). It aims to reflect on what has led contemporary education to sustain a patriarchal model and deny the Soul Hues as expressions of the feminine. This is a bibliographical study based on Erich Neumann, Riane Eisler, and Humberto Maturana. The concept of Soul Hues emerged during the COVID-19 pandemic. During that period, the shift to virtual life revealed a growing distance from manual practices, limiting the relationships with others, symbolizing a disconnection from the feminine essence. So far, in the research, analyzing the context, we have detected a gap in relation to the Expression of the Feminine as a practice in the field of education in general and, in particular, in teaching. For Eisler (2007), the social system in which we live, and in which contemporary education plays its role, idealizes the power of the sword, adopting a patriarchal model as a form of violence and domination, repressing the expression of each individual's soul hues. This research aims to address this gap and highlight the importance of integrating the feminine in educational practices.

Keywords: Education. Teaching. Feminine. Expressions. Patriarchy.

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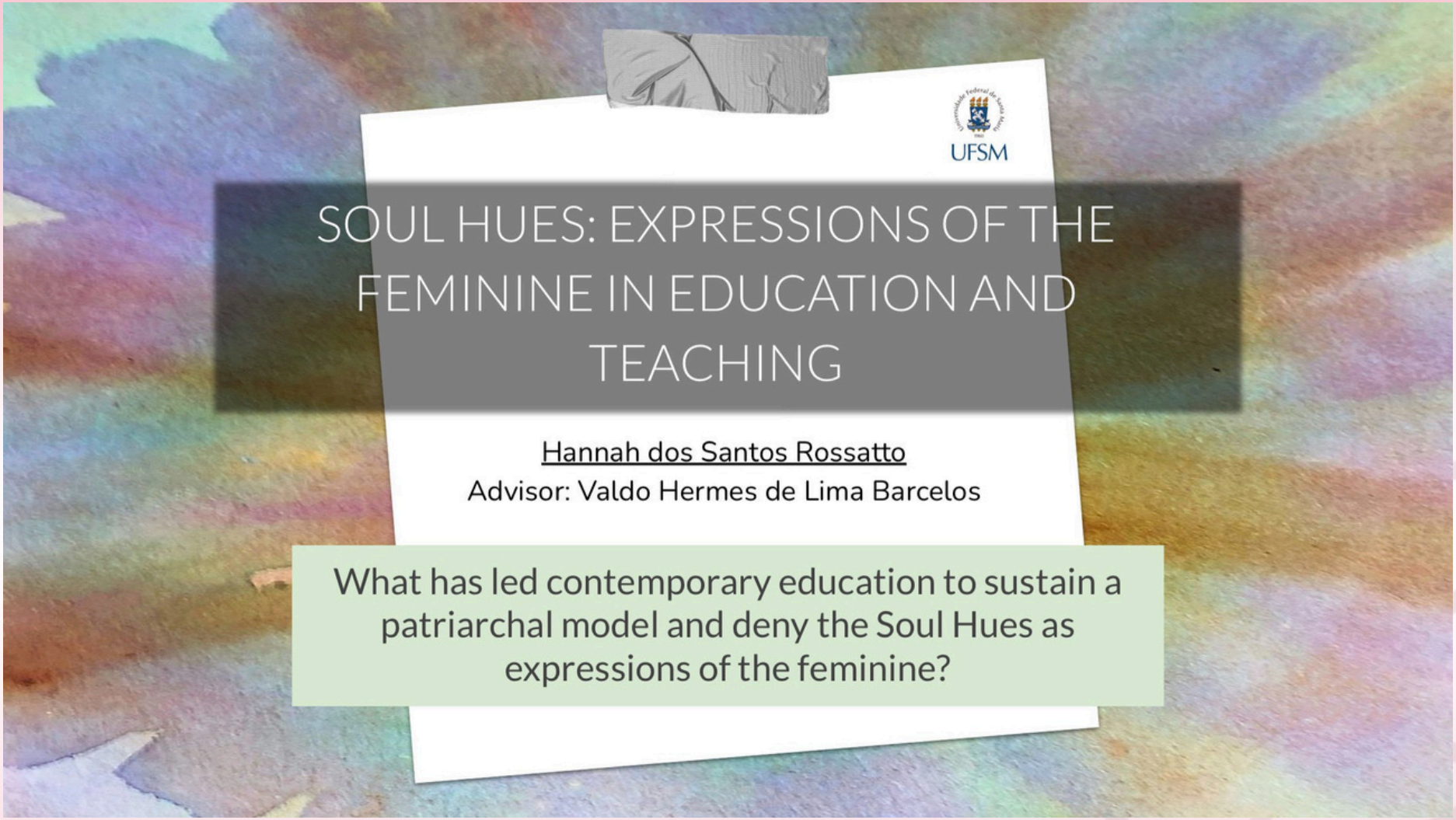
SOUL HUES: EXPRESSIONS OF THE FEMININE IN EDUCATION AND TEACHING



THE SHAPE OF WORDS: LETTERING AND CHARACTERIZATION OF NON-HUMAN CHARACTERS IN THE SANDMAN GRAPHIC NOVEL

Ícaro Silva Gonçalves[1], Enéias Farias Tavares[2]

Abstract: Comic books are formed by images and words, and their reading and understanding depends on the comprehension of these codes. Balloons and lettering are part of this system and intersect both these aspects, allowing a nuanced understanding of these narratives. This research focuses on the use of lettering as a part of the construction of comic book characters. Thus, the characters Dream, Death, and Delirium, from the graphic novel *Sandman* (GAIMAN et al., 1980-1996) will be studied. The method of analysis consists in observing how the lettering and speech balloons related to these characters reflect their personalities in the narratives, also pointing to their relation to humanity as represented in the comic. Therefore, this study bases itself in the theories developed by Cagnin (1975), Cirne (1972), Christin (2013), Groensteen (2015), Postema (2018), among other authors in the area and related areas, as well as notes made by Todd Klein, *Sandman*'s letterer, in his blog related to the subject. Finally, this dissertation seeks to emphasize the functions, characteristics, and importance of these elements in comic books.

Keywords: Comic Books. Lettering. Characterization. Sandman.

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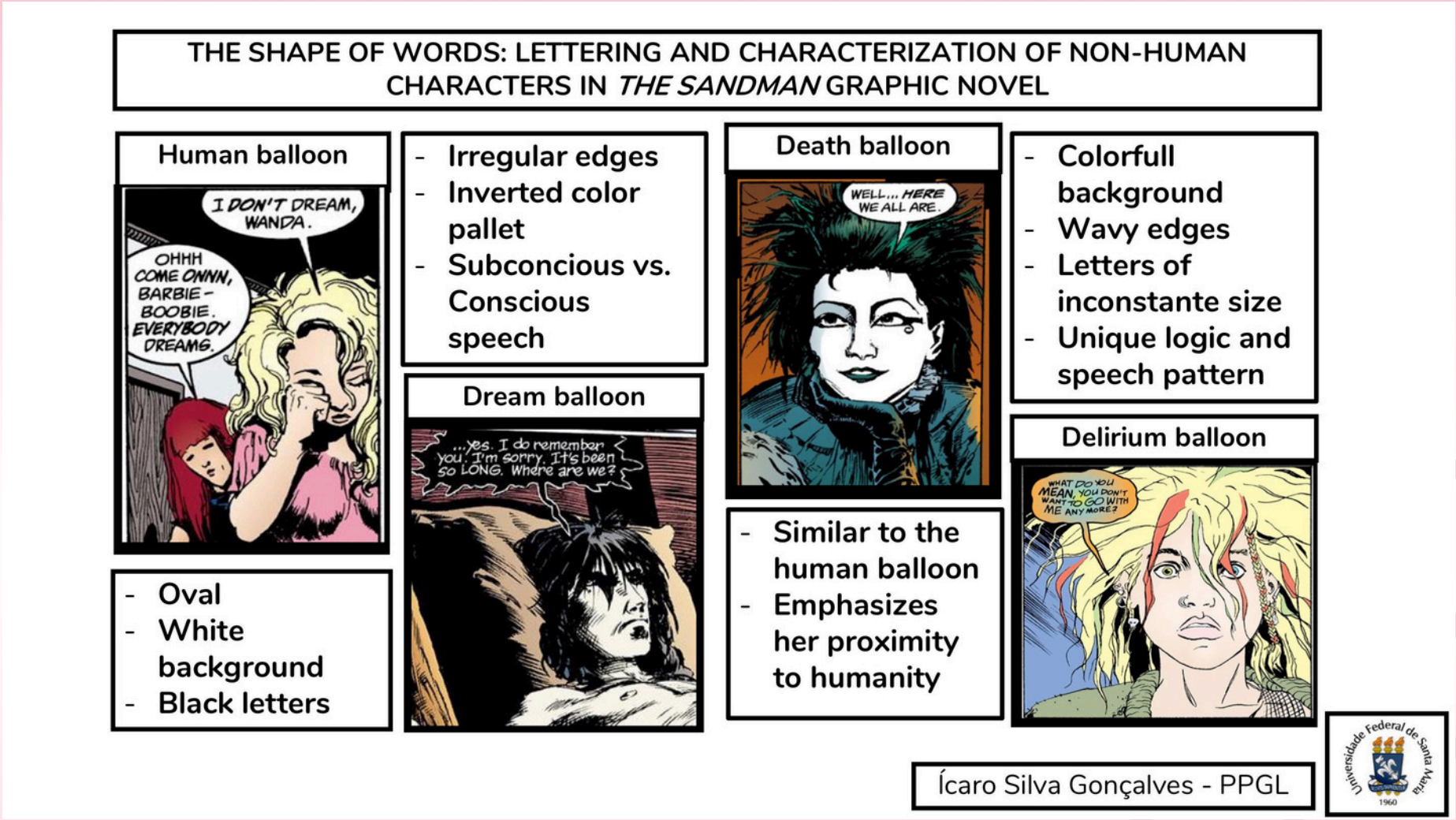
THE SHAPE OF WORDS: LETTERING AND CHARACTERIZATION OF NON-HUMAN CHARACTERS IN THE SANDMAN GRAPHIC NOVEL



ART-SCIENCE-TECHNOLOGY MUSEUM: TRANSDISCIPLINARY APPROACHES TO CURATION, EXHIBITION AND ARCHIVES

Isabella Bittencourt dos Santos[1], Fernando Codevilla[2]

Abstract: The MACT project, in collaboration with the Laboratory of Contemporary Art, Technology and Digital Media/LABART, develops projects in Visual Arts through the transdisciplinary approach of art, science, and technology. In 2024, two main events were organized: FACTO11 and the 19th Contemporary Art Symposium. The central theme for both events was "Artificial Intelligence", inspired by discussions based on Mark Coeckelbergh's book "AI Ethics" (2023). Organizing these events involved four months of weekly meetings with the entire team and forming specific working groups focused on Curatorship, Exhibition Design, Digital Media, and Administration. To achieve the goals for these events, the team selected 8 artists and 19 speakers across Latin America, whose works and research explored diverse perspectives and future strategies related to artificial intelligence. The project emphasized the importance of integrating research on emerging topics with the use of museum spaces, understanding that this research has significant implications for building critical thinking and shaping the future for present and the generations. It highlighted the value of transdisciplinary approaches in advancing discussions on art, technology, and ethics.

Keywords: Art-science-technology. Transdisciplinarity. IA. Museum.

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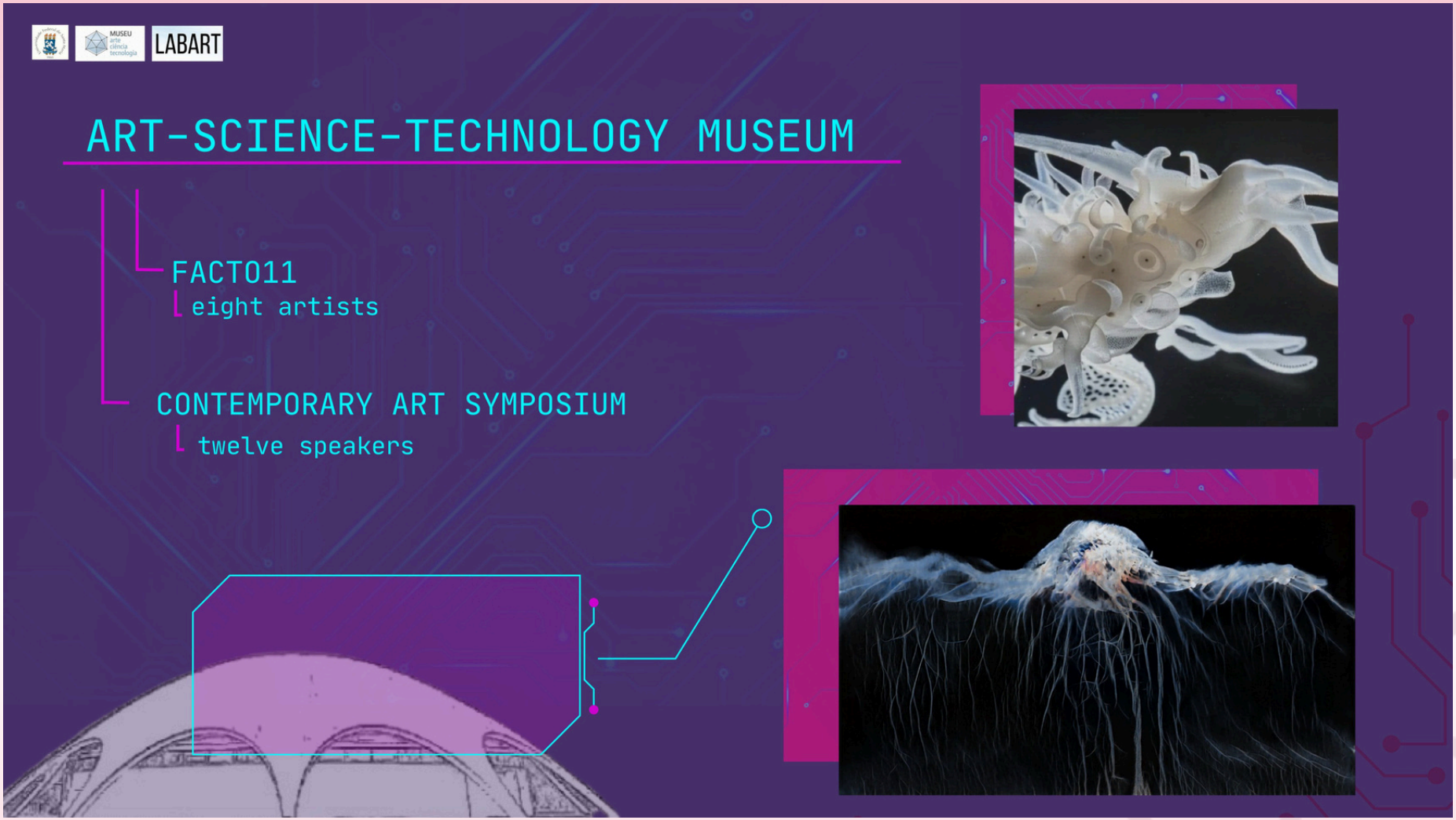
ART-SCIENCE-TECHNOLOGY MUSEUM: TRANSDISCIPLINARY APPROACHES TO CURATION, EXHIBITION AND ARCHIVES



TIBIAL PLATEAU LEVELING OSTEOTOMY IN DOGS: AN OVERVIEW FROM THE VETERINARY UNIVERSITY HOSPITAL AT UFSM

Jamilly Rosa dos Santos[1], Daniel Curvello de Mendonça Müller[2]

Abstract: Among the techniques used to treat cranial cruciate ligament disease in dogs, tibial plateau leveling osteotomy (TPLO) is the most studied, demonstrating good long-term clinical results. This study aims to evaluate the TPLO surgeries performed at the Veterinary University Hospital at UFSM, providing an overview of the patients' profiles, as well as their osteoarticular alterations and characteristics. The records of 108 TPLO surgeries performed from August 2021 to October 2024 were reviewed, with 64.5% (70/108) of the patients being female and 35.2% (38/108) male, and a mean age of 6.75 years. It was found that 62.85% (44/108) of the corrections were on the right limb, 37.15% (26/108) on the left limb, and 35.18% (38/108) bilaterally, with the mean time of contralateral involvement in these patients being 203.79 days. Additionally, 17.59% (19/108) of the dogs were classified as large, 49.07% (53/108) as medium, and 33.33% (36/108) as small, with small animals presenting the highest rates of elevated (61.1%; 22/36) and excessive (22.22%; 8/36) plateau angles. Thus, it is concluded that studies like this are important as they allow us to understand the local reality of a disease, helping to establish more specific epidemiological patterns for a given population group.

Keywords: Surgery. Knee disorders. Cranial cruciate ligament rupture. TPLO.

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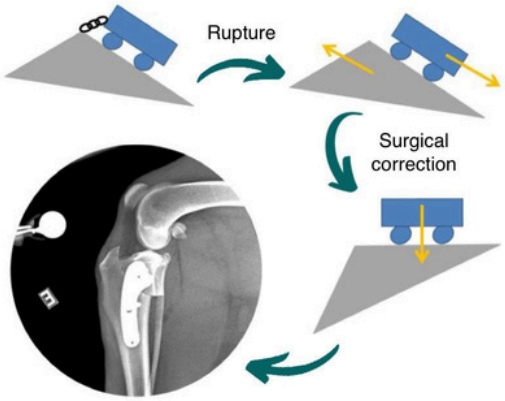
TIBIAL PLATEAU LEVELING OSTEOTOMY IN DOGS: AN OVERVIEW FROM THE VETERINARY UNIVERSITY HOSPITAL AT UFSM

Tibial plateau leveling osteotomy in dogs: an overview from the Veterinary University Hospital at UFSM

Jamilly Rosa dos Santos, Daniel Curvello de Mendonça Müller

INTRODUCTION

Among the techniques used to treat cranial cruciate ligament disease in dogs, tibial plateau leveling osteotomy (TPLO) is the most studied, demonstrating good long-term clinical results.



OBJECTIVE

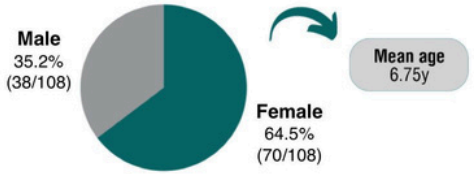
This study aims to evaluate the TPLO surgeries performed at the Veterinary University Hospital at UFSM, providing an overview of the patients' profiles, as well as their osteoarticular alterations and characteristics.

MATERIAL AND METHODS

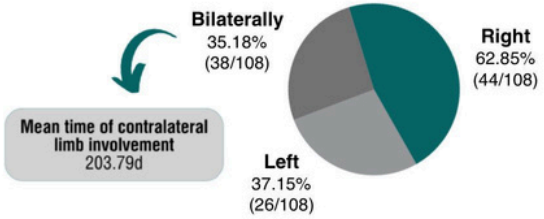
The records of 108 TPLO surgeries performed from August 2021 to October 2024 were reviewed.

RESULTS

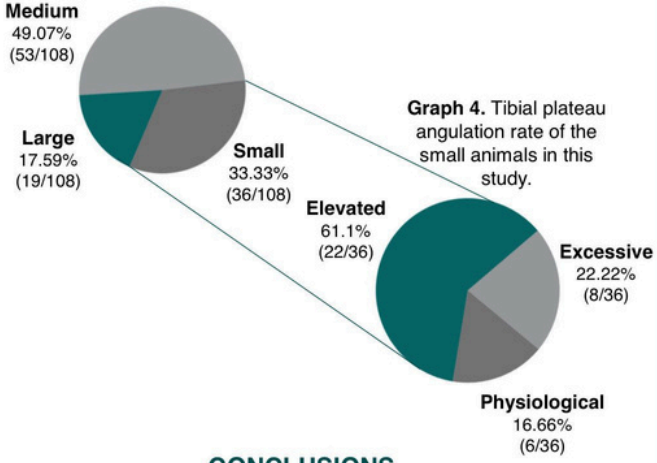
Graph 1. Sex of the animals in this study.



Graph 2. Corrected limbs of the animals in this study.



Graph 3. Size of animals in this study.



Graph 4. Tibial plateau angulation rate of the small animals in this study.

CONCLUSIONS

Studies like this are important as they allow us to understand the local reality of a disease, helping to establish more specific epidemiological patterns for a given population group.

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HOW SOLAR POWER GENERATION AFFECTS ELECTRICAL GRID: A CASE STUDY ON TRANSFORMERS

João Pedro Pranke Perin[1], Tiago Bandeira Marchesan[2]

Abstract: Power plants, responsible for generating energy, are often far from consumers. To transmit this energy efficiently, high voltage is used, as it's easier for electricity to be transmitted. Close to the consumer, the voltage is reduced, allowing the safe use in our homes. The equipment responsible for increasing and decreasing the voltage is called a transformer. With the growth of solar energy generation, these transformers face new operating conditions, which require more studies to ensure they continue to function reliably. One of the main challenges is "current harmonics," distortions caused by inverters that convert energy from solar panels. These distortions can cause excessive heating in critical parts of the transformer, and, as known, electrical equipment and excessive heat don't mix well. This study analyzes how these distortions affect transformers in large solar plants, focusing on the internal parts where electricity flows. Using computer modeling with a method called Finite Element Analysis (which breaks the model into small parts to solve piece by piece), it was possible to understand how heat is distributed inside the transformer and how this can impact its final temperature. These results help improve future designs, preventing failures and extending the lifespan of transformers in solar plants.

Keywords: Renewables. Photovoltaic. Transformers.

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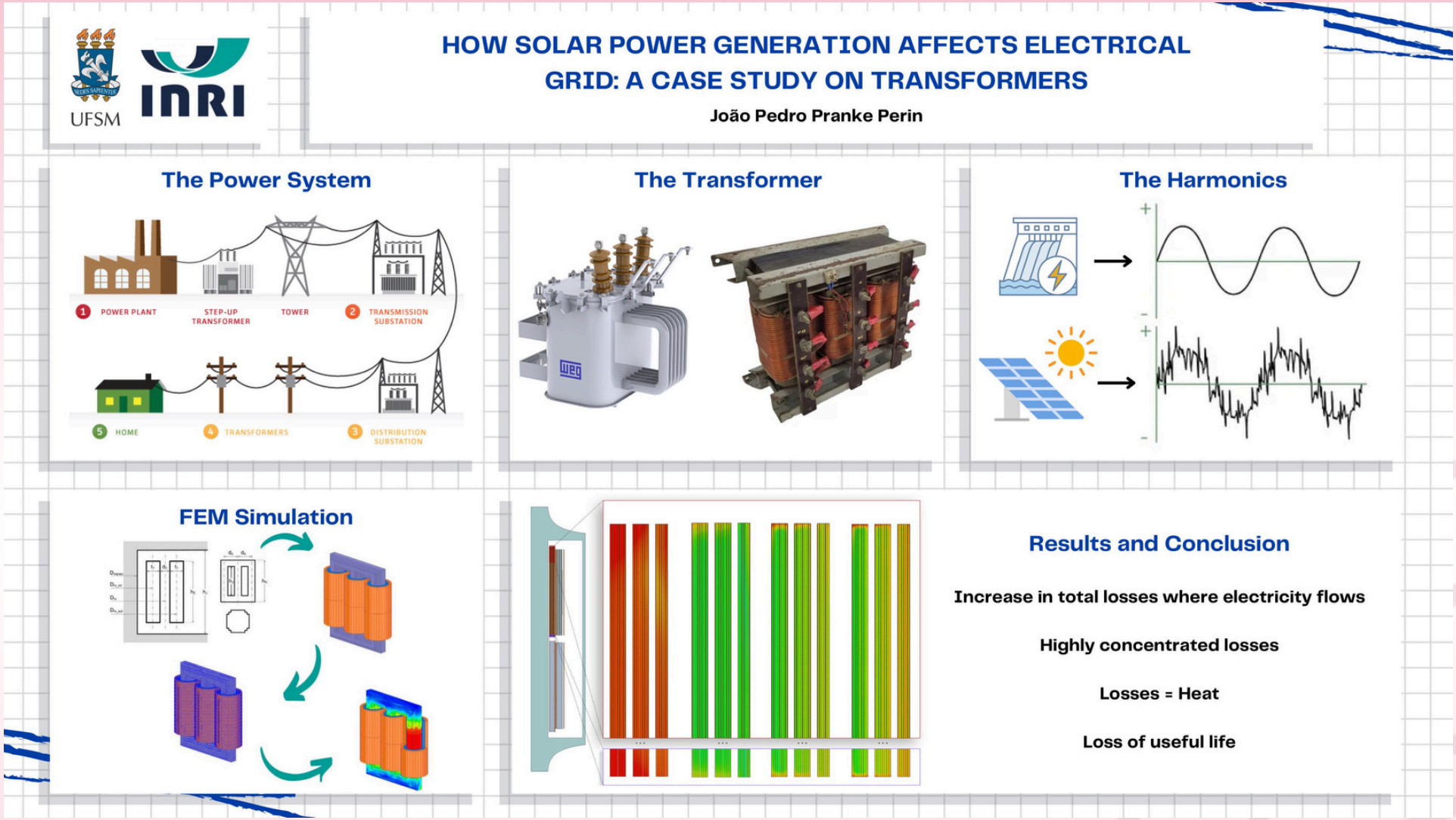
HOW SOLAR POWER GENERATION AFFECTS ELECTRICAL GRID: A CASE STUDY ON TRANSFORMERS



THE USE OF MICROWAVE ENERGY FOR FUEL PRODUCTION FROM PLASTIC WASTE

João Vítor Jacobi[1], Cezar Augusto Bizzi[2]

Abstract: The world is currently facing serious problems with plastic waste, which is polluting our oceans, threatening marine life, and harming public health. It is estimated that millions of tons of plastic are discarded each year, and the majority is not recycled. This situation calls for innovative solutions to convert plastic waste into useful resources, such as fuels. This study aimed to investigate a method to convert polyurethane foams, a plastic waste, into fuels. To do so a microwave oven was adapted to heat the material with the aid of graphite powder. The system was maintained in a controlled environment using argon gas to prevent unwanted reactions. It generated oils and gases that were analyzed to discover what kind of compounds they contained. The system was tested in an environment with temperatures between 350 °C and 670 °C. As observed, the amount of products varied depending on the temperature. The quality and composition of the produced oil and gas are better than those of the feedstock, which represents an attractive alternative for being used as fuel. Finally, the present research shows microwave heating as an effective technology to produce valuable products from plastic waste.

Keywords: Microwave radiation. Waste valorization. Production of fuels. Polyurethane. Pyrolysis system.

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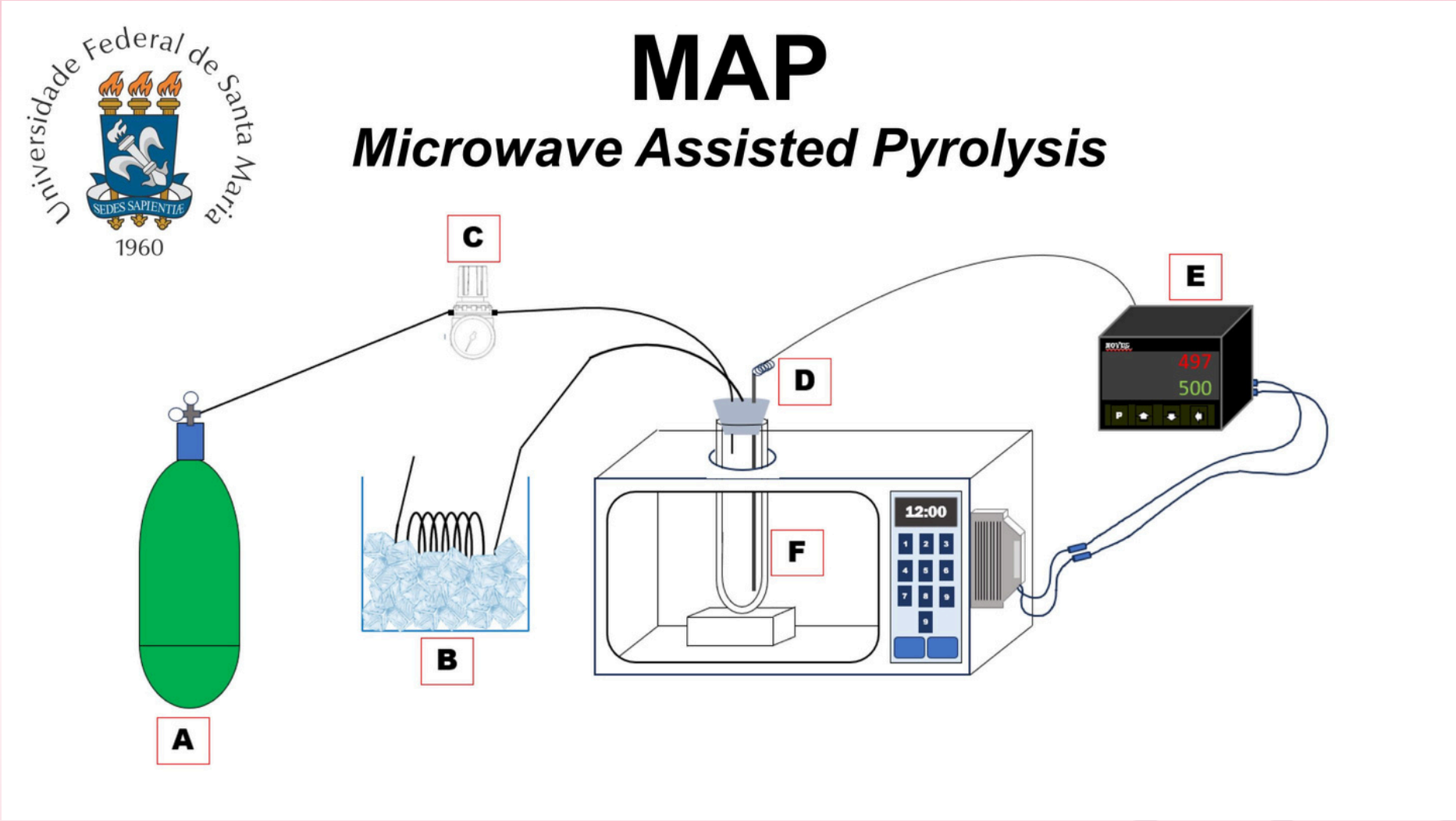
THE USE OF MICROWAVE ENERGY FOR FUEL PRODUCTION FROM PLASTIC WASTE



IBERÊ CAMARGO FOUNDATION ANALYSIS

Júlia Brenner Colling[1], Juliana Lang Pádua[2]

Abstract: The Iberê Camargo Foundation, designed by Álvaro Siza, is a museum in Porto Alegre, Brazil, displaying works by the Brazilian painter Iberê Camargo and hosting other exhibitions. Completed in 2008, the building covers 9,364m² and overlooks Lake Guaíba, known for its sunset views. Siza, a renowned Portuguese architect, brought his minimalist approach to the project, emphasizing smooth, clean surfaces and minimal fenestration. Influenced by Frank Lloyd Wright and Alvar Aalto, Siza applied a monolithic structure using white concrete to avoid the need for paint. Due to the triangular, irregular site, the design is vertical, with specific functions on each floor. The basement holds parking, an auditorium, and ateliers; the ground floor has a shop, reception, and café; upper floors are dedicated to exhibitions. The building's geometry is unique, featuring curved, straight, and angled lines, with prominent external walkways. Siza's careful design uses natural light and temperature control systems to enhance the display of artworks. The museum's architecture blends complex forms with simple, smooth facades, creating a striking contrast that aligns with its natural and urban surroundings.

Keywords: Iberê Camargo Foundation. Analysis. Functional Organization. Design Choices.

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OLIVE POMACE: FROM INDUSTRIAL WASTE TO A PHENOLIC-RICH, PLANT-BASED PÂTÉ

Julia Rachi Torga do Carmo[1], Tatiane Emanuelli[2]

Abstract: The olive oil industry is economically important in Chile, Argentina, Uruguay, and more recently in the state of Rio Grande do Sul (Brazil). This production leads to a great amount of by-product: olive pomace (OP), which constitutes 80% of the mass generated. Developing new food products with OP, particularly olive pomace pulp (OPP), presents an opportunity to enhance the nutritional and bioactive properties of food. This study aimed to formulate a plant-based pâté incorporating OPP and evaluate the impact of different olive cultivars (cv) on the public's taste. OP from *Olea europaea* cv. 'Arbequina' and 'Koroneiki', were used to obtain the pitted OPP. Pâté formulations containing 10% and 20% OPP were developed using a green banana biomass as a base. Sensory analysis (ethical approval CAAE: 76703023.0.0000.5346) was conducted with 23 trained tasters (17 women and 6 men, 18-36 years-old). They assessed appearance, odor, taste, and texture using an unstructured 9-cm scale. Pâtés containing 'Arbequina' OPP were more associated with pleasant flavor and higher consumer acceptability than 'Koroneiki' containing patés. These OPP- enriched patés offer an appealing option for increasing PC intake and potentially providing health benefits, not only to vegan and vegetarian consumers.

Keywords: Bioactive value. Upcycling. Olive pomace pulp.

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PUBLIC SECURITY PROMOTION THROUGH FACIAL RECOGNITION TECHNOLOGIES IN BRAZIL: THE NEED FOR REGULATION IN LIGHT OF THE FUNDAMENTAL RIGHTS

Júlia Schmidt Kronbauer[1], Rafael Santos de Oliveira[2]

Abstract: In the last decade, there has been a noticeable public investment in facial recognition technologies as a public security solution in Brazil; however, there is no specific law to regulate this. Therefore, this research questions what should be the outlines of a specific regulation of these technologies. Furthermore, this research aims to comprehend the technical aspects of these tools and interpret the underlying aspects of its use; to study the use of this technology in Brazilian law enforcement and its impacts on fundamental rights; and to compare Brazilian laws and bills to foreign regulations on the topic. To this end, Philosophical Hermeneutics is combined with bibliographic and documentary research. The conclusion is that facial recognition technologies present flaws and biases that perpetuate racial prejudice and social stigmas. Moreover, these tools can promote mass surveillance, which constitutes a violation of fundamental rights and civil liberties, and may intensify selective criminalization. Lastly, despite the lack of government transparency, the scarce available data points to the inefficiency of these tools in the studied context. Thus, the future regulation should either ban this technology or attend to the constitutional rights, implementing the existing general principles of data protection and applying the precautionary principle.

Keywords: Artificial intelligence. Facial recognition. Fundamental rights. Mass surveillance. Public security.

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PUBLIC SECURITY PROMOTION THROUGH FACIAL RECOGNITION TECHNOLOGIES IN BRAZIL: THE NEED FOR REGULATION IN LIGHT OF THE FUNDAMENTAL RIGHTS

CLOCK GENERATION FOR LOW POWER APPLICATIONS

Kauana Quintana Fort[1], Maurício Banaszeski da Silva[2]

Abstract: The clock signal is used by processors and other devices found in smartphones, smartwatches, medical equipment, and security systems. This signal provides synchronization for tasks within the electrical circuit, ensuring that every action occurs in the correct sequence and within a precise time frame, which is critical for its proper functionality. However, as technology advances—particularly with the rise of the Internet of Things (IoT)—there is an increasing demand for energy-efficient devices that can balance performance with low power consumption. This research focuses on developing an innovative clock system designed to optimize energy usage. The clock governs the speed at which a processor operates, and by improving its efficiency, devices can manage power consumption more effectively. This is especially important for IoT devices, which require extended battery life. By enhancing the efficiency of these systems, this research contributes to the development of more energy-efficient technologies, which are essential for the future of connected devices and other technological innovations that are capable of changing people's lives by allowing the development of smart cities and smart homes, improving public safety through smart surveillance and emergency response systems and making transportation smarter with connected cars, traffic management systems, and predictive maintenance.

Keywords: Internet of Things. Clock Generation. Low Power. Synchronizer. Circuit.

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FRAGMENTS OF RIO GRANDE DO SUL'S HISTORY: ARCHAEOLOGICAL METALWORK EXHIBITION AND HERITAGE EDUCATION AT LASCA/UFSM

Larissa Bondarenko[1], André Luis Ramos Soares[2], Cristiane Gallas;
Patrick Silveira Ventura[3]

Abstract: This study presents the activities developed under the research project "Memory and Cultural Heritage: From Academic Research to Heritage Education," focusing on the archaeological exhibition "Fragments of Rio Grande do Sul's History: The Metals of LASCA." The exhibition aims to make the metallic collection of the Laboratory of Archaeology, Societies and Cultures of the Americas (LASCA) accessible to the public, highlighting aspects of the state's material culture. Emphasizing the metal objects, which are often overlooked in historical archaeology studies, the exhibition explores the relationship between the society that produced these items and their materiality. The showcased artifacts, uncovered through archaeological excavations in the cities of São Martinho da Serra, Alegrete, and Quaraí from the late 19th to early 20th centuries, provide insights into the region's cultural history. The exhibition at LASCA features guided tours for school groups and general visitors, with positive outcomes so far, including object selection, panel planning, text development, and display construction.

Keywords: Archaeology. Cultural Heritage. Rio Grande do Sul. Heritage Education

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FRAGMENTS OF RIO GRANDE DO SUL'S HISTORY: ARCHAEOLOGICAL METALWORK EXHIBITION AND HERITAGE EDUCATION AT LASCA/UFSM

FEDERAL UNIVERSITY OF SANTA MARIA
CENTER FOR HUMAN AND SOCIAL SCIENCES

The Metals of LASCA: Fragments of the History of Rio Grande do Sul through Material Culture

IMPACT OF ADDING HYDROLYZED COLLAGEN, POTASSIUM CHLORIDE AND ARGININE ON THE QUALITY OF LOW-SODIUM, LOW-FAT MORTADELLA

Letícia Pereira Correa[1], Paulo Cezar Bastianello Campagnol[2]

Abstract: In recent years, there has been an increasing consumer demand for healthier food products. In response to this trend, the food industry has adjusted its production practices to meet this preference. Although meat products are popular due to their convenience and ease of preparation, it is important to acknowledge that many of them contain high levels of sodium and fat, which pose potential health risks. One approach to enhancing the nutritional quality of these products is the substitution of sodium chloride with potassium chloride, providing a healthier option. Furthermore, the incorporation of hydrolyzed collagen provides important gelling properties essential in the production of meat emulsions, while also contributing to water retention. However, it is crucial to address the potential undesired sensory effects that may arise from the replacement of NaCl with KCl. In this regard, arginine has been employed to reduce such sensory deficiencies. This project aims to implement a strategy involving the use of potassium chloride, hydrolyzed collagen and arginine to reduce the fat and sodium content in mortadella. Comprehensive evaluations of the technological, physicochemical, and sensory properties of the final product were conducted, with the goal of offering consumers a healthier alternative.

Keywords: Sodium reduction. Fat reduction. Collagen. Arginine. Meat emulsion.

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DOES GABAPENTIN IMPROVE TOTAL INTRAVENOUS ANESTHESIA ON CATS?

Lucas Bitencourt Plautz[1], Gabrielle Coelho Freitas[2]

Abstract: Stress can affect physiological parameters and complicate pain assessment, while reducing stress is linked to lower anesthetic requirements and improved postoperative recovery. Gabapentin is a drug indicated for neuropathic pain, seizures and stress relief on particularly aggressive cats. This study aimed to evaluate the effects of gabapentin on reducing anesthesia induction and maintenance doses in female cats undergoing spaying. Twenty-four healthy female cats aged 2 to 7 years, weighing 2.5 to 3.7 kg, were randomly assigned to three groups: G100 (100 mg gabapentin), G150 (150 mg gabapentin), and a placebo group (GP). Induction with propofol (0.1 mg/kg/h IV) occurred 20 minutes later, followed by intubation and maintenance with total intravenous anesthesia adjusted based on anesthetic depth. Statistical analysis revealed no significant differences in average induction doses (10.46 mg/kg GP, 9.7 mg/kg G100, 10.44 mg/kg G150) or maintenance rates (0.379 ± 0.04 mg/kg/h GP, 0.279 ± 0.01 mg/kg/h G100, 0.311 ± 0.02 mg/kg/h G150). Therefore, gabapentin did not reduce propofol requirements in this context and more studies should be conducted on the matter to evaluate gabapentin potential.

Keywords: Total intravenous anesthesia. Gabapentin. Feline.

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DOES GABAPENTIN IMPROVE TOTAL INTRAVENOUS ANESTHESIA ON CATS?

IS THERE ROOM FOR DISINFORMATION ON SOCIAL MEDIA IN BRAZIL? A STUDY ON CONTENT MODERATION UNDER BRAZILIAN LAW

Luiza Berger von Ende[1], Rafael Santos de Oliveira[2]

Abstract: It is not unusual to believe in something seen online just to find out it was not actually true. This phenomenon is called disinformation, which is a content that is manipulated or taken out of context that aims to mislead the receptor. Social media and the courts are aware of this problem and trying to tackle it. There are some risks, though: when we keep false information online, it can still cause harm; on the other hand, when it is taken away, there may be a collective erasing of the memory that someone lied about something. We aim to investigate whether or not disinformation should remain available online in the light of Brazilian law. Our first hypothesis is that it should be deleted, because it is harmful; the second one is that it should remain available because it has to hold someone accountable for their words. The study combines literature review and observation of content moderation practices on social media and court decisions in Brazil. We hope to understand the risks to fundamental rights when moderating disinformation and to propose the best alternative to this problem, so that the internet can be a truthful environment through which society can move.

Keywords: Content moderation. Disinformation. Social media platforms.

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IS THERE ROOM FOR DISINFORMATION ON SOCIAL MEDIA IN BRAZIL? A STUDY ON CONTENT MODERATION UNDER BRAZILIAN LAW

EVALUATION OF THE ZARC PEDOTRANSFER FUNCTION IN SOILS WITH ROCK FRAGMENTS

Maria Eduarda do Prado Boemo[1], Paulo Ivonir Gubiani[2]

Abstract: Soil water availability is crucial for plant growth, and the loss of productivity due to water imbalance may increase with climate change. Estimating available water (AW) is essential for climate risk analysis, but direct measurement is labor-intensive. To simplify this, a pedotransfer function based on soil texture (sand, silt, and clay content) was developed in Brazil and is used in the Agricultural Risk Climate Zoning (ZARC) methodology. However, this function may be inaccurate in soils with rock fragments. This study evaluated the ZARC function in Neossols with coarse fragments in Rio Grande do Sul. AW was directly measured (AWmed), and estimated using the ZARC function (AWest), based on sand, silt, clay, and coarse fragments. Results showed that AWest consistently underestimated AWmed, indicating errors in stony soils. These inaccuracies could lead to poor decision-making, such as incorrect planting times or legal land misclassifications. Adjustments to the ZARC function are necessary for stony soils, or its use should be avoided in these areas.

Keywords: ZARK. Rock Soil. Climate Change. Pedotransfer.

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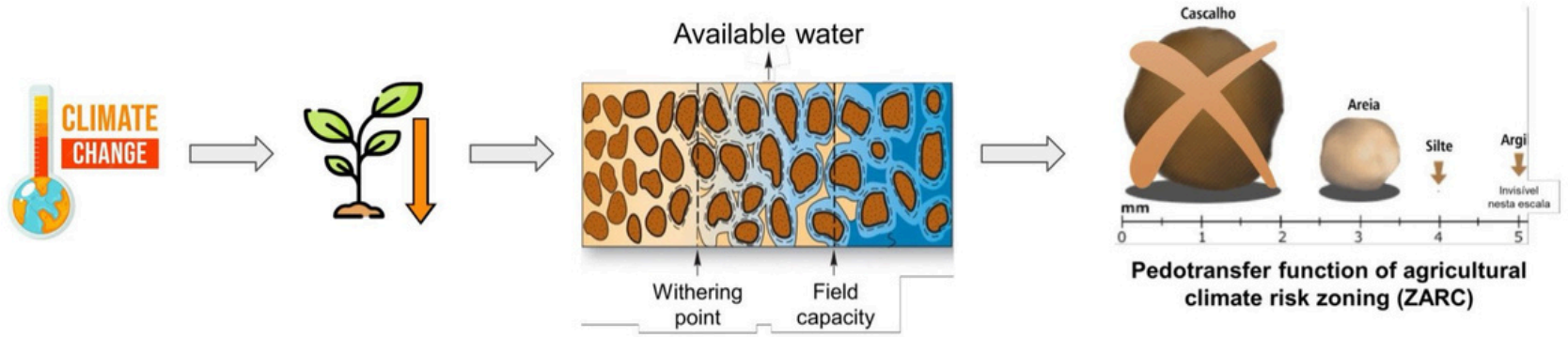
EVALUATION OF THE ZARC PEDOTRANSFER FUNCTION IN SOILS WITH ROCK FRAGMENTS

EVALUATION OF THE ZARC PEDOTRANSFER FUNCTION IN SOILS WITH ROCK FRAGMENTS



Pedotransfer function of agricultural climate risk zoning (ZARC)

BUT...

WHAT ABOUT THE EFFECT OF ROCK FRAGMENTS PRESENT IN THE SOIL?

RADIO SUPPORT RS: BATTERY-POWERED RADIO COLLECTION CAMPAIGN

Maria Eduarda Thaddeu Pedroso[1], Jaqueline Quincozes da Silva Kegler[2]

Abstract: In April and May 2024, Rio Grande do Sul faced severe flooding, resulting in 179 confirmed deaths, 79 missing persons, and significant environmental and material losses, leading to a state of public calamity (Decree No. 57,596). In response, faculty and students from the Communication courses at the Federal University of Santa Maria (UFSM) joined the "Rádio Apoio RS: Radio and Battery Donation Campaign" initiated by the University of Santa Cruz do Sul. The project aims to support communities affected by the floods by facilitating access to information about the climate crisis in areas where communication was disrupted. Utilizing action-research methodology (Thiollent, 2022), the project mapped news and media content to monitor community needs and interests. Content production began on May 9, 2024, containing informative materials about donation collection points and a PIX key for financial contributions for radios and batteries were shared. The initiative specifically assisted communities without electricity during the floods by collecting and distributing radios and batteries, with help from partner organizations. Additionally, it fostered critical citizenship among the participating students and helped maintain their connection to UFSM during a turbulent period that could have led to increased dropout rates.

Keywords: Public Communication. Information. Citizenship. Calamity.

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THE ARCHITECTURE OF MEMORY IN DOMINIQUE GOBLET

Mariana Ferreira Gonçalves[1], Maria Clara da Silva Ramos Carneiro[2]

Abstract: *Faire semblant c'est mentir* (2007), by the belgian artist Dominique Goblet, is an autobiographical graphic novel in which the author examines the most important relationships in her life: with her parents, with her partner and with her daughter. Goblet's work, marked by the combination of reality and fiction, has not yet been published in Brazil. In view of this, this research aimed to analyze the aspects related to autobiography and memory found in the comic. To this end, we anchored our analysis in the theoretical contributions of Ricoeur (2007) on memory, and in the considerations of Lejeune (2008) and Arfuch (2010) on autobiography and self-writing. The autobiographical genre does not distinguish the position of the real and the fictional, requiring an active participation of its reader. In this sense, comics are a pertinent medium for the construction of autobiographical accounts, enabling the (re)composition of oneself under one's own trace, with the figure of the author being inseparable from his portrait. In Goblet's work, comics are a space to experiment with self-writing, in which, by transforming her emotions into colors and image, the narrative of her life merges with her artistic project.

Keywords: Autobiography. Graphic novel. Memory. Dominique Goblet.

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EVIDENCE-BASED PRACTICES FOR STUDENTS WITH AUTISM IN REGULAR EDUCATION NETWORKS

Mariele Finatto[1], Carlo Schmidt[2]

Abstract: This study investigated the use of Evidence-Based Practices (EBPs) by regular education teachers in the state of Santa Catarina, Brazil, specifically when working with students diagnosed with Autism Spectrum Disorder (ASD). The main objective was to identify the extent to which EBPs are incorporated into daily classroom practices and how they align with the current educational demands for ASD students. The research employed a mixed-methods approach, combining both qualitative and quantitative techniques. Data were collected through questionnaires and semi-structured interviews with teachers who had experience working with ASD students. The findings revealed that while many teachers reported that their practices reflected the principles of EBPs, there was a lack of full adherence to the fidelity protocols required for the effective implementation of these practices. The discussion emphasized the need for continuous professional development programs, which integrate EBPs with the existing knowledge and experience of teachers, ensuring long-term adoption and sustainability. Studies of this nature can significantly contribute to enhancing the overall educational experience for students with ASD, improving the quality of teaching practices, and aiding in the development of robust educational policies that bridge the gap between theory and practice.

Keywords: Autism. Evidence-Based Practice. Special Education.

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BRIDGES OF WORDS: MULTILINGUAL WELCOME

Milena Cargnin Cielo[1], Angelica Micoanski Thomazine[2], Ana Paula Carvalho Schmidt[3]

Abstract: The Federal University of Santa Maria (UFSM) welcomes international students and researchers from different cultures every year; however, Portuguese can become a barrier for newcomers. Considering this reality, this project aims to translate the location signs on Roraima avenue, in the Campus, into English and Spanish as a form of accessibility and support for international students (AMENADOR; WANG, 2022). As part of the Outreach Project *Letras na comunidade santa-mariense* (062126), this proposal sought to understand needs regarding sign translation at the university through interviewing one student from Senegal, who reported that signs in English would have helped him with location. As a result, the 8 signs located on Roraima Avenue were translated into English and Spanish. These languages were chosen because English can be understood as a global language, while Spanish is the most spoken language in countries bordering Brazil. After this, the sign translation proposal was presented to the dean of infrastructure, but a lack of financial resources inhibited the implementation of the project. Then, the International Affairs Office (SAI/UFSM) coordinator and the Pro-Rector's Office of Infrastructure (PROINFRA) were contacted and both of them showed interest in the proposal, which is still being developed and might be implemented.

Keywords: Sign Translation. Outreach Project. International Students. English Language Resources.

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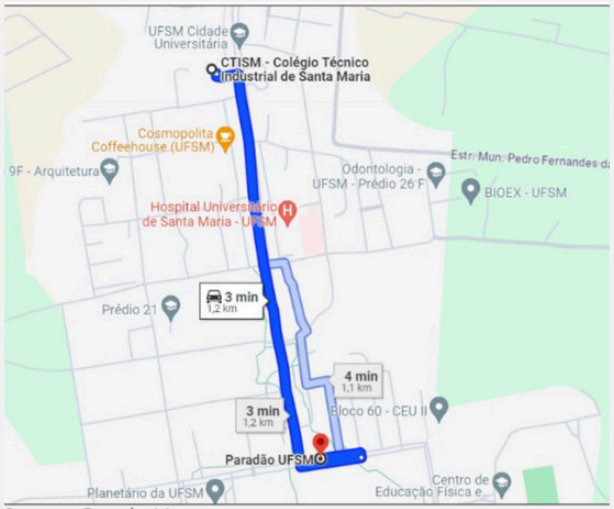
BRIDGES OF WORDS: MULTILINGUAL WELCOME

BRIDGES OF WORDS: MULTILINGUAL WELCOME

II Simpósio de Intercâmbio Acadêmico
III Symposium of Academic Exchange

This work is part of the Outreach Project "Letras na comunidade santa-mariense".

Figure 1: Location of signs selected for translation: Roraima avenue



Source: Google Maps

Figure 2: Example of sign:

Source: picture taken by the authors.

Figure 3: Example of translation into Spanish and English:

CT 07 Centro de Tecnologia Centro de Tecnología Centre of Technology	**CTISM** 05 Colégio Técnico Industrial Escuela Técnica Industrial Industrial Technical School
HUSM 22 Hospital Universitário University Hospital	**HUSM** 22 Hospital Universitário University Hospital
ATU Asociación de Transporte Público Public Transportation Association	**ATU** Asociación de Transporte Público Public Transportation Association
Livraria UFSM Librería UFSM UFSM Bookshop	**Farmácia** Farmacia Pharmacy
Papelaria Papelería Stationery	**Correios** Correos Post Office
Xerox	**Xerox**

Source: Made by the authors, Sign #2 - front and back - located in front of CTISM

Academic: Milena Cargnin Cielo
Supervising professors: Angelica Micoanski Thomazine e Ana Paula Carvalho Schmidt

HIGH-ACCURACY PETAL-TYPE SPACE ANTENNA PROTOTYPE

Milene Follmann[1], Dr. Manan Arya[2]

Abstract: Satellites have revolutionized humanity through their applications in communication, imaging, and navigation. To ensure optimal functionality, maintaining reliable contact with Earth is critical, which can be achieved through reflector antennas. A major challenge in antenna design for space missions is size constraints due to the high costs and limited volume of rocket payloads, and deployable structures have become a crucial solution for this limitation. The project focuses on designing a deployable antenna with a solid surface capable of emitting and receiving high-frequency electromagnetic signals, featuring a 2-meter deployed diameter with 24 rotationally symmetrical petals that unfold around a focal axis, resembling a flower blooming. A prototype with four petals was developed to test angle deployment accuracy, even a small angle of error could highly impact communication efficiency, so the goal is to achieve minimal error in deployment. Because of the optimal combination of a small deployed diameter with high-frequency operation, this represents a big step for space applications, particularly for missions distant from Earth.

Keywords: Space Antenna. Prototype. Petal-type Reflector Antenna.

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HIGH-ACCURACY PETAL-TYPE SPACE ANTENNA PROTOTYPE

High-Accuracy Petal-Type Antenna Reflectors

Satellites

- Communications
- Imaging
- Navigation

Antenna Reflectors

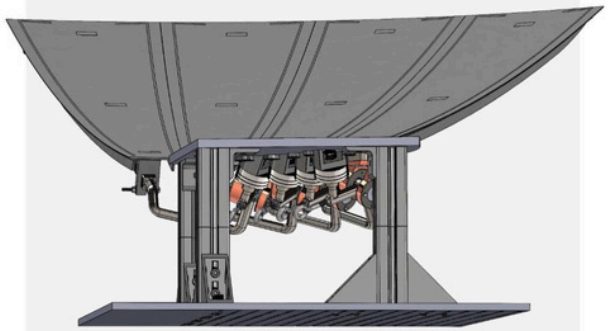
Maintaining communication with Earth is essential

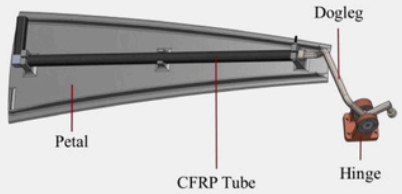
Main Challenges

- Size of the reflectors
- Reflector surface accuracy

Development of **Deployable Structures**

Computer-Aided Design

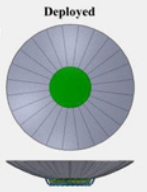




Project

Solid Surface Deployable Antenna

- Deployed diameter of 2 m
- 24 petals
- Maximum mass 50 Kg
- Rotationally symmetric



ALTERNATIVE BUD INDUCERS FOR ADVANCING DORMANCY BREAK IN PECAN TREES

Mylena da Silva Brum[1], Luciane Almeri Tabaldi[2]

Abstract:. *Carya illinoinensis* (pecan tree) is a fruit-bearing tree of great commercial importance. Its production cycle depends on low winter temperatures, which are necessary to break bud dormancy. However, with advancing climate change and milder winters, it has become increasingly difficult for this species to achieve the required chilling conditions. Consequently, the use of chemical agents to induce dormancy break has become a common practice in commercial orchards. Among these products, hydrogen cyanamide (Dormex) is widely used. However, this compound is costly and poses environmental risks. The study was conducted in an orchard located in Santa Maria, RS, to evaluate the effects of four alternative bud inducers on eight pecan cultivars during their third cultivation cycle. Bud sprouting rates were recorded after 30 days, and fruit yield was measured in April 2023. Among the inducers tested, the product Levante stood out, showing dormancy break results similar to those obtained with Dormex. These results suggest that Levante is a promising and eco-friendly alternative for managing pecan orchards, contributing to sustainable production amid changing climate conditions.

Keywords: Dormancy Breaking. Fruiting. Pecan. Productivity.

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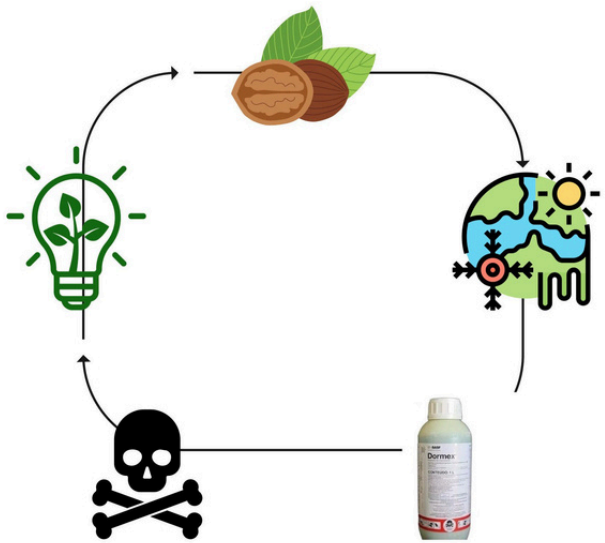
ALTERNATIVE BUD INDUCERS FOR ADVANCING DORMANCY BREAK IN PECAN TREES

ALTERNATIVE BUD INDUCERS FOR ADVANCING DORMANCY BREAK IN PECAN TREES



FONTE: Autora, 2024

VARIATION OF SOMATIC MOBILIZATION RATE OF THE *MARINER* TRANSPOSON DURING AGING IN *DROSOPHILA SIMULANS*

Natália Coradin Verissimo Soares[1], Élgion Lúcio da Silva Loreto[2]

Abstract: Transposable elements (TEs) are DNA sequences capable of mobilizing in the genome of somatic cells (SM). In many eukaryotes TEs are silenced, but in *Drosophila* most are active, such as *mariner*. Several factors can interfere with *mariner* mobilization, including defects in TEs control mechanisms that can progress with age. This study investigates how *mariner* excision rates vary with age in *D. simulans*. Flies were maintained on a corn meal diet and samples were collected at 2, 10, 20, 30, and 40 days after hatching, followed by DNA extraction and qPCR analysis. The data were statistically validated by Kruskall-Wallis and T-test and showed an increase in the rate of SM over time. However, a greater increase was observed from 2 to 10 days old flies (p=0,026) and from 20 to 30 days old flies (p=0,028). The Spearman R test also showed a positive trend for increased excision as a function of age (ρ=0.9). Despite the pattern of increase, our results reveal that excision does not occur proportionally during aging. The greatest variation in rate occurs early in the life of individuals and between adulthood and senescence.

Keywords: *mariner*. Transposon. *Drosophila*. Aging.

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DETERMINATION OF CYSTATIN C REFERENCE VALUES IN A PEDIATRIC POPULATION

Natália Flores Jacobi[1], Jose Antonio Mainardi de Carvalho; Clóvis Paniz[2]

Abstract: Chronic kidney disease (CKD) affects around 10% of the world's population and is a prominent cause of death in the 21st century. The diagnosis is made through laboratory tests that estimate the glomerular filtration rate (GFR). In order to calculate GFR, it is necessary to measure a specific biomarker such as serum creatinine or cystatin C. Currently, serum creatinine is the most widely used biomarker, but some authors have already pointed out criticisms of this marker, so a more in-depth study of cystatin C is necessary. The aim of this study is to verify the reference values for cystatin C as a marker of CKD in children and to compare the results with serum creatinine. Samples were taken from 134 children aged between 5 and 11 years. The median serum creatinine level was 0.62 mg/dL and the reference values found were between 0.44 mg/dL and 0.74 mg/dL. The future prospects of the work will be to dose cystatin C and calculate the GFR for both markers to assess whether there is a difference between them. This work will generate reference values that can be used later for clinical and laboratory analysis of pediatric patients.

Keywords: Serum creatinine. Glomerular filtration rate. Pediatric patients. Chronic kidney disease.

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DETERMINATION OF CYSTATIN C REFERENCE VALUES IN A PEDIATRIC POPULATION

INTRODUCTION

- Chronic kidney disease (CKD) causes a slow and progressive decrease in the kidneys' ability to filter the blood
- The diagnosis is made through laboratory tests

↓

Glomerular Filtration Rate → Serum creatinine, Cystatin C

JUSTIFICATION

Some authors have already pointed out criticisms of serum creatinine, so a more in-depth study of Cystatin C is necessary

OBJECTIVE

Verify the reference values for Cystatin C as a marker of CKD in children and compare the results with serum creatinine

METHODS

5-11 years old

134 children

IMPLICATIONS FOR THE COMMUNITY

Generate reference values that can be used later for clinical and laboratory analysis of pediatric patients.

Determination of Cystatin C reference values in a pediatric population

Natália Flores Jacobi [1], Profº. Drº. Jose Antonio Mainardi de Carvalho 2], Profª. Drª Clóvis Paniz [2]
[1] Postgraduate Program in Pharmaceutical Sciences, UFSM. [2] Department of Clinical and Toxicological Analysis, UFSM.

FUTURE PROSPECTS

- Dose Cystatin C
- Calculate the GFR for both markers

RESULTS

- Median serum creatinine level was 0.62 mg/dL
- Reference values = between 0.44 mg/dL and 0.74 mg/dL

Approved by the UFSM Research Ethics Committee: CAAE 29792120.9.0000.5346

PPGCF

LAPACA

VALUES, MORALS AND THE NEW POLITICAL RIGHT IN BRAZIL: AN ANALYSIS OF THE IMPLICATIONS BASED ON DEMOCRATIC THEORY

Pâmela Caroline Alves Pinto[1], Cleber Ori Cutis Martins[2]

Abstract: The "new political right" (Gentile, 2018; Miguel, 2019) has evaluative understandings that are averse to pluralism. This implies challenging the secular nature of the State and restrictive and exclusionary definitions of family, marriage and religion. This paper analyzes some consequences of these evaluative positions that generate social and electoral cohesion in the discussion about pluralism and the parameters of political competition in part of Democratic Theory. The argument operates with elements of the realist perspective, considering that a democratic political regime is characterized by broad political rights, free and fair elections, political dispute and competition with pre-established rules and guarantees of freedom and participation (Sartori, 1994; Dahl, 2012; Lijphart, 2003; Przeworski, 1994) and the normative perspective, which argues in favor of the establishment of an inclusive democratic process with more representative political decisions (BENHABIB, 2007; URBINATI, 2006; PATEMAN, 1992). The overlapping of religiously based moral and evaluative understandings is configured in objections to diversity, implying an understanding centered on the confrontation and, ultimately, the exclusion of other conceptions. The impossibility of accepting others, due to not sharing the same values, results in the understanding of others as enemies (MOUFFE, 2003), radicalizing differences, placing insurmountable obstacles based on a constructed morality.

Keywords: New Right. Democracy. Pluralism.

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SPEED MEASUREMENT AND TRAFFIC LIGHT CONTROL SYSTEM USING LIGHT SENSORS: AN APPROACH TO TEACHING ELECTRONICS AND PROGRAMMING

Patricia Tomalak Liss[1], Vitor Cristiano Bender[2]

Abstract: Programming and Electronics are subjects that require students to use abstraction, such as imagining the flow of electric current, the lighting of a bulb, and the cycle of a program. These subjects are often taught without practical applications, making it difficult for students to grasp fundamental concepts. To overcome this challenge, it is essential to create more interactive lessons where students can apply theoretical knowledge. This paper presents a practical activity that applies programming and electronics concepts. The proposed activity involves the implementation of a traffic system prototype. During the construction, light-dependent resistors (LDRs) are used as sensors, introducing the concept of resistance change with incident light. Additionally, LEDs are employed to review basic electronics concepts, such as the importance of limiting current and calculating appropriate resistors. Educationally, this proposal offers a dynamic and constructive learning experience by linking theory to practice, and helps students better understand real-world applications, such as urban traffic control. The project is adaptable to different educational levels, from basic to advanced.

Keywords: Programming. Light-Dependent Resistors (LDRs). Electronics.

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AN AUTOMATED TOOL TO MAP URBAN CRIME IN SANTA MARIA THROUGH WEB SCRAPING

Pedro Arthur Pinto da Silva Ortiz[1], Leandro Oliveira Freitas[2]

Abstract: Urban crime significantly impacts population quality of life, affecting economy, health, tourism, and leisure activities. While large cities often have well-formatted crime data from reliable sources, this is far from the rule. This research explores how automated tools, specifically web scraping, can contribute to urban crime analysis, particularly in smaller cities lacking comprehensive crime data infrastructure. Our methodology employs web scraping techniques using Selenium and Python to extract crime-related news from the "Diário de Santa Maria" website. The collected data undergoes cleaning and filtering processes, leveraging the Anthropic API to enhance accuracy and relevance. The resulting dataset serves as a foundation for generating heat maps visualizing crime patterns across city neighborhoods. Initial findings reveal challenges in data collection, including the presence of repeated news items and occasional unreliable sources. However, the research demonstrates the potential of this approach in creating accessible, location-specific crime datasets. The study aims to develop a versatile tool applicable to various urban settings, facilitating easier generation and analysis of localized crime data. This research has implications for urban planners, law enforcement agencies, and policymakers, offering a cost-effective method for crime mapping in areas with limited resources for comprehensive data collection.

Keywords: Web Scraping. . Crime. Automation. Crime analysis.

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A PROPOSAL OF TRANSLATION OF SIGNS AT THE LANGUAGE AND LITERATURE BUILDING (40A)

Tainá Raissa Leindecker Erbes[1], Angelica Micoanski Thomazine[2]

Abstract: The 40A building, where different languages are taught, does not have signs in any other languages besides Portuguese. In addition, the visual resources inside the building are currently composed of literary and linguistic book covers, in which 79,5% are written in Portuguese, 11,7% in English and 8,8% in Spanish. Based on this information, the aim of this project is to propose a translation of the signs for bathrooms and coordination rooms into English and Spanish, in order to create a multilingual environment, which is also essential to promote internationalization in the campus. To understand needs regarding sign translations, two quantitative-qualitative questionnaires were applied, for two different groups of students - some enrolled in Language and Literature courses and others from different courses. As a result, English and Spanish students agreed their courses are poorly represented through the visual resources displayed in the building, while most Portuguese students considered their course to be well represented. Furthermore, 87.5% of them believe it would be important to translate the signs into English and Spanish, as this is a location where these languages are present in their daily lives.

Keywords: Translation Studies. Translation of Signs. Language representation. Internationalization.

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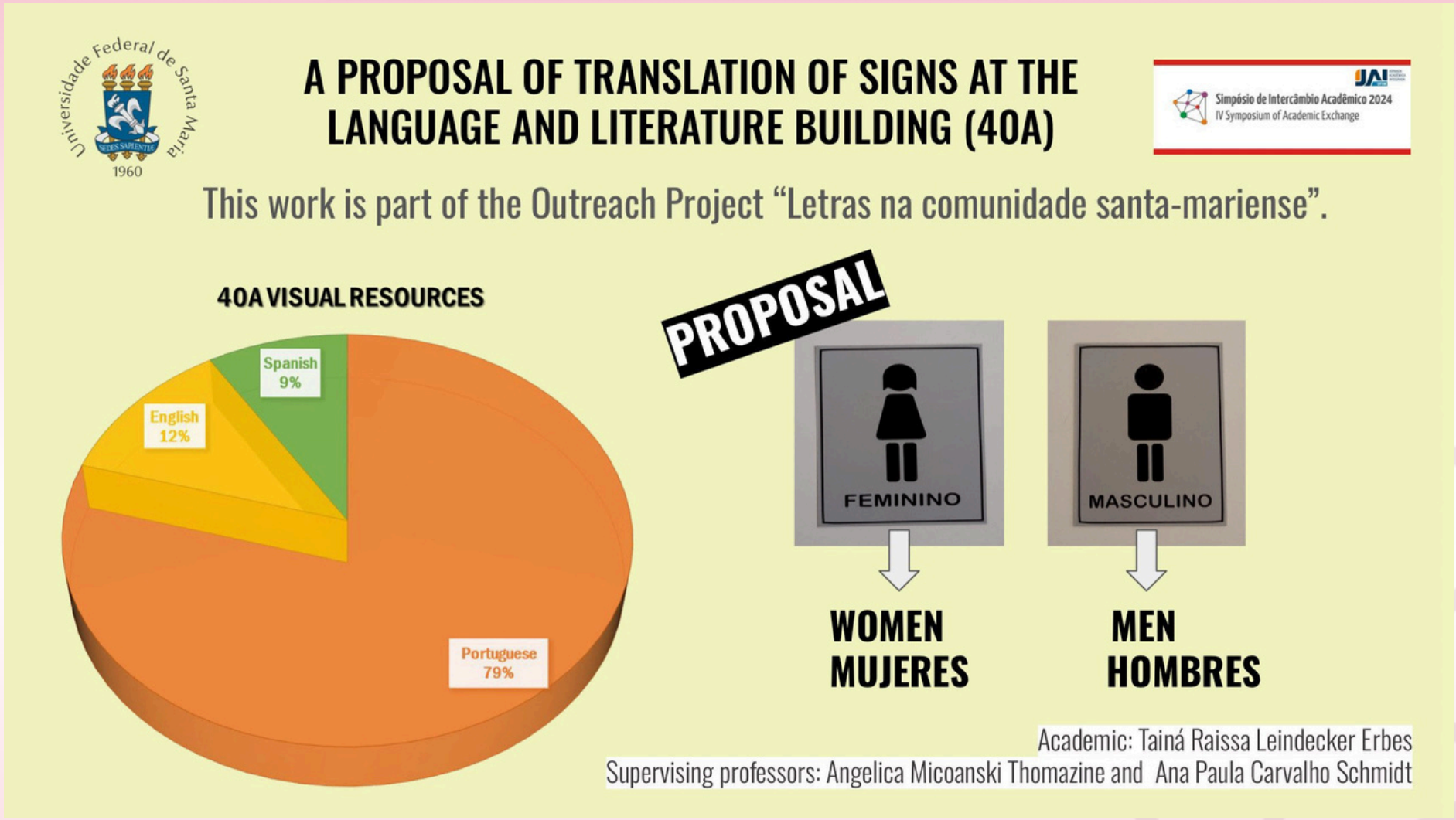
A PROPOSAL OF TRANSLATION OF SIGNS AT THE LANGUAGE AND LITERATURE BUILDING (40A)



ESTIMATION OF AUDITORY THRESHOLDS VIA A PSYCHOMETRIC TEST BASED ON THE METHOD OF LIMITS

Victor Kiyomi Estevam[1], Lucas Bogaz De Angelo[2], William D'Andrea Fonseca[3], Felipe Ramos De Mello[4]

Abstract: Psychoacoustics deals with studying human hearing abilities, such as sound detection, differentiation, and recognition. It is an important field, since hearing health is essential for well-being, directly influencing communication and social interaction abilities. Aiming to familiarize students with classical psychoacoustical methods, a didactic experiment was conducted in the Psychoacoustics course of the Federal University of Santa Maria's (UFSM) Acoustical Engineering program. The goal was to estimate the auditory thresholds of volunteers through a psychometric test based on the method of limits. The experiment was implemented in Matlab and the volunteers were exposed to audio signals reproduced via headphones. Initially inaudible, the signals gradually increased in amplitude, and participants were instructed to press a button when they heard the sound, which then began to decrease in intensity. The volunteer had to press the button again when the sound was no longer perceived, characterizing the ascending and descending thresholds. These measurements made it possible to estimate the average auditory threshold. Compared with reference curves from the literature, the results indicated the experiment's success. Ultimately, with a hands-on approach, students engaged with the activity and were able to better comprehend the topic, thus contributing to knowledge transfer and retention.

Keywords: Hearing health. Hearing loss. Auditory thresholds. Method of limits. Psychometric test.

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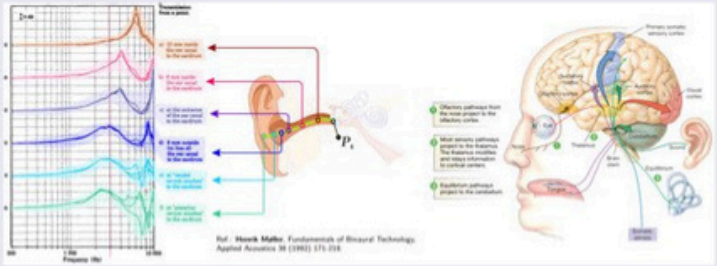
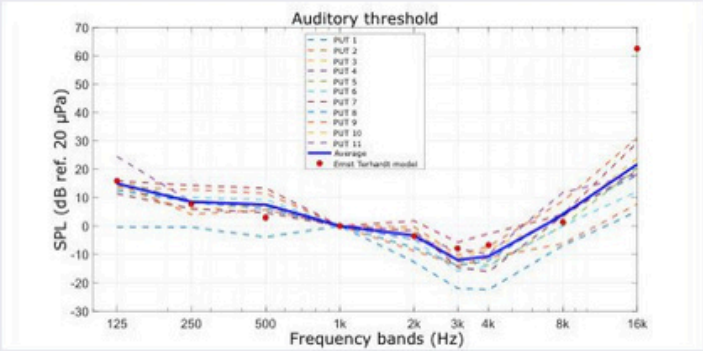
ESTIMATION OF AUDITORY THRESHOLDS VIA A PSYCHOMETRIC TEST BASED ON THE METHOD OF LIMITS

Estimation of auditory thresholds via a psychometric test based on the method of limits

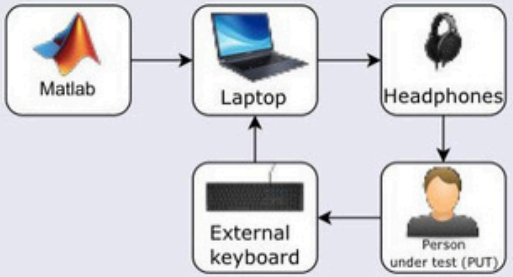
Psychoacoustics



Results



Methodology



Implications

- Didactic approach;
- Interested students;
- Knowledge retention.

IV Symposium of Academic Exchange
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REVISTA NOTURNA: FEMINIST LITERATURE HORROR PERSPECTIVE

Vitória Carolini Ferraz Oliveira[1], Lucas da Cunha Zamberlan[2]

Abstract: Brazilian Contemporary Literature, particularly concerning the literary production by female authors, has expanded and moved against previously established norms in the field. These revolutions primarily challenge traditions grounded in horror, subverting through women's writing the very concepts once deemed subversive of the genre itself. However, for decades, these concepts merely reproduced misogynistic stereotypes, especially concerning representations of what it means to be a woman. Therefore, the present study aims to analyze the short stories published in both editions of *Revista Noturna* — an editorial group dedicated to promoting short horror narratives written by Brazilian women in the independent publishing market — in order to establish alternative approaches to classical horror. This analysis is grounded in the theoretical perspectives of Noel Carroll in *The Philosophy of Horror, or Paradoxes of the Heart*, Julia Kristeva's definition of abjection in *Powers of Horror: An Essay on Abjection*, and Jeffrey Jerome Cohen's *Monster Theory*, particularly regarding the nature and meaning of monsters, supported by the historical and sociological framework of feminist theory by Silvia Federici.

Keywords: Horror Literature. Brazilian Contemporary Literature. Feminist Literature.

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REVISTA NOTURNA: FEMINIST LITERATURE HORROR PERSPECTIVE

IV Symposium of Academic Exchange

REVISTA NOTURNA: FEMINIST LITERATURE HORROR PERSPECTIVE

Vitória Carolini Ferraz Oliveira[1]
Lucas da Cunha Zamberlan[2]

This research explores how contemporary Brazilian women authors use intertextuality and horror to subvert traditional genre conventions and critique social issues. Focusing on short stories from Revista Noturna — Varejeiras (The Blowflies), Autotanatologia (Autotanatology), and Rendeira de Ossos (Bone Weaver) — it examines how these works challenge misogynistic stereotypes and subvert patriarchal structures, addressing gender violence, social inequalities, and resistance. Drawing on concepts from Julia Kristeva's intertextuality, Noël Carroll's horror theory, and Jeffrey Cohen's monster culture, the study reveals how horror is redefined to expose and critique societal issues through literary innovation.

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[2] PhD in Literary Studies. Professor of Department of Vernacular Languages (Centro de Artes e Letras). E-mail: lucasdacunhazamberlan@gmail.com

PHYSICAL AND CHEMICAL CHARACTERIZATION OF *PAULOWNIA TOMENTOSA* STEUD. WOOD FOR CELLULOSE-BASED PRODUCTS

Vitória de Moura Martins[1], Cristiane Pedrazzi[2]

Abstract: This study evaluated the wood of *Paulownia tomentosa* (kiri), a tree species valued for its landscape and productive qualities. Five 13-year-old trees, located in the city of Tuparendi, Rio Grande do Sul, were analyzed for their physical and chemical properties. Wood discs were extracted from various heights of the trees, yielding 25 samples in total. The basic density of the wood was determined using the immersion method, following the ASTM D2395-93 standard, while chemical analyses (including total extractives, lignin, holocellulose, and alpha-cellulose content) were conducted according to TAPPI standards. The basic density was found to be 0.269 g/cm³. Chemical analysis revealed 17.3% total extractives, 17.1% Klason lignin (with an S/G ratio of 1.15, indicating the proportion of syringyl to guaiacyl lignin), 67.7% holocellulose, and 62.1% alpha-cellulose. These results suggest that *Paulownia tomentosa* wood, due to its high holocellulose and alpha-cellulose content and low lignin content, shows significant potential for the production of cellulose-based bioproducts, particularly in applications such as pulp production and nanotechnology.

Keywords: *Paulownia tomentosa*. Wood density. Chemical analysis. Cellulose. Bioproducts.

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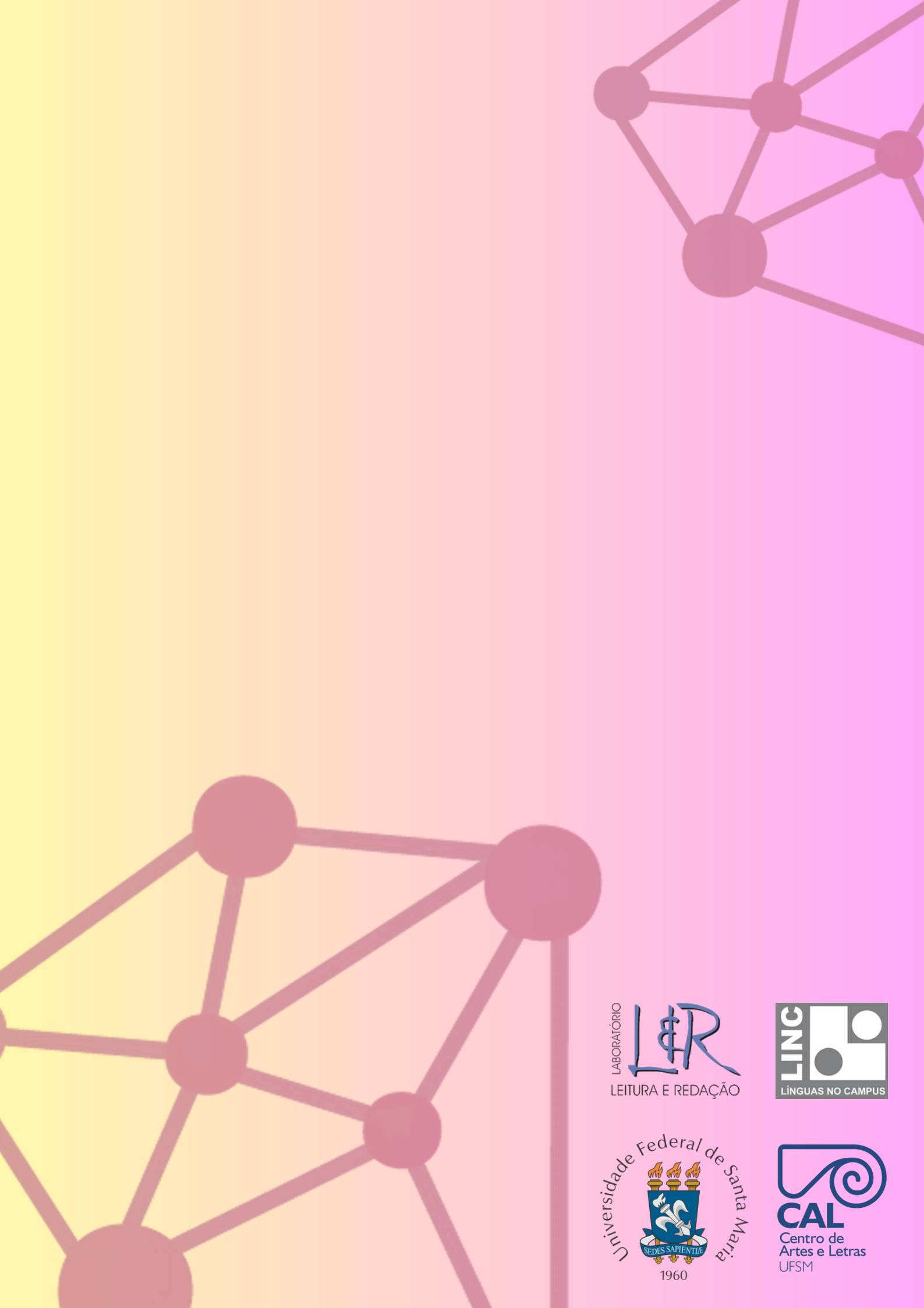
PHYSICAL AND CHEMICAL CHARACTERIZATION OF PAULOWNIA TOMENTOSA STEUD. WOOD FOR CELLULOSE-BASED PRODUCTS

Have you ever wondered how trees become paper?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