



EDITORIAL

Approximately fifty years ago the Administrative Department Science, Technology, and Innovation (Colciencias) was founded to promote science in Colombia. Thirty years later, Publindex, a regulatory system to evaluate scientific journals was established. Originally, this system was focusing on editorial processes rather than on impact. After twenty years a new model was implemented, based on international standards such as ISI Web of Science and an h index (number of citations per published article). Without any transition phase, Colombian journals had to change their editorial strategy in order to adapt to the current model.

Around forty percent of journals previously registered in Colciencias were categorized according to this model. The model implemented aims to improve the impact factor of the journals, but it also has to be in concordance to the needs of the researchers and the scientific community in Colombia. In the future, this scheme should take into account economic, environmental, and social factors of research in the country.

The editorial team of TECCIENCIA has made an arduous effort to categorize the journal according to the new model, not only by maintaining its quality but also by improving its impact. This achievement

would not have been possible without the continuous support of the private and public sector, through resources, policies and other facilities. Yet, STEM investment in Colombia continues being much lower than in OECD countries (it corresponds to only 0.2% of the GDP) which delays multi-dimensional development in our country.

In this issue of TECCIENCIA Journal, we open with the paper Evaluation of the Microlocal Wind Power Potential for the Operation of a University Wind Turbine, that describes research done by Universidad ECCI and Universidad San Buenaventura. The authors evaluate the wind's potential on the terrace of the P-building of the Universidad ECCI. The results reveal the feasibility of the operation of a wind micro-turbine according to the wind local conditions.

Next, researchers from Universidad Nacional de Colombia present the paper Shielding Calculation for Nuclear Medicine Services. They compare two methods to calculate the shielding necessary to guarantee medicine service zones to be safe from ionizing radiations. On the other hand, authors from Universidad Distrital Francisco José de Caldas make a comparison among different techniques applied to simulation and representation of the expansion of the



coffee berry borer in local coffee crops. Their work is shown in the paper Comparison between fuzzy, neuro-fuzzy and neural network models to estimate the expansion of coffee berry borer in Colombian coffee crops.

Comparative Analysis between a Discrete Spiral Chamber and a Continuous Spiral Chamber via ANSYS is a study made by a team in the Instituto Tecnológico Metropolitano de Medellín. They use engineering simulation tools (ANSYS-CFX) to compare behavior and performance from a discrete continuous spiral chamber in a virtual environment under the same physical operating conditions.

Researchers from Universidad Nacional de Colombia and Universidad Distrital Francisco José de Caldas present their work Tuning up Fuzzy Inference Systems by using optimization algorithms for the classification of solar flares. In the paper, the authors describe the implementation and analysis of different optimization algorithms used to find the best set of parameters for a Fuzzy Inference System intended to classify solar flares.

In Acquisition of the Minor Planet Center code for the Astronomical Observatory of the Technological University of Pereira researchers from Universidad Tecnológica de Pereira show a tool that they developed to determine the orbits of minor bodies in the Solar System, and, therefore, foresee possible collisions of these objects with the Earth. In the paper, they discuss the methodology implemented at the

Astronomical Observatory of the Universidad Tecnológica de Pereira (OAUTP) to obtain the Minor Planet Center (MPC) code from the work shown here.

Investigators from Universidad Militar Nueva Granada summarize their work in Effects of incorporation of additives in the mechanical properties of films of linear low-density polyethylene. The work shows the effect of the introduction of additives in the mechanical properties of LLDPE films, made to be used as greenhouse covers.

A team of researchers from Universidad de Pamplona present the paper Development of automation and control system for the freezing of bovine semen. The main objective of this study is to design and implement an automated control system of freezing bovine semen that follows or simulates the ideal freezing curves for optimal freezing after stabilization.

Technical comparison of alternatives for voltage sag mitigation in distribution systems, a paper by a team from Universidad Distrital Francisco José de Caldas and the Servicio Nacional de Aprendizaje SENA follows. In this document, the authors show a study about performance of an electric distribution system in presence of voltage sags using a distribution generation (DG) unit and a distribution static compensator (DSTATCOM).

Research done jointly by Universidad Nacional de Colombia and Universidad



ECCI is presented in Biomass densification: A review of the market and recent R&D trends. The document aims to review the performance of the international pellets market focusing on the main producers and consumers, the wood pellets prices, and the major trends about research and development in this area.

Finally, investigators from Instituto Tecnológico Metropolitano de Medellín present Construction Methods Comparison of Stress Concentrators Curves for Different Geometries of Machine Elements. The aim of this study is to compare the efficiency of simulated methods (as the ANSYS® software) with the experimental results on the stress concentration phenomenon.

We would like to show our gratitude and appreciation to the contributing researchers from the following Universities and Research Centers:

- ✎ Universidad Nacional de Colombia
- ✎ Centro Internacional de Física
- ✎ Universidad Autónoma de Bucaramanga
- ✎ Universidad San Buenaventura
- ✎ Unidades Tecnológicas de Santander
- ✎ Universidad del Cesar
- ✎ Universidad Pedagógica y Tecnológica de Colombia
- ✎ Universidad Politécnica de Cataluña
- ✎ University of Iceland

Sincerely,

Fernando Arturo Soler López, MSc

Rector

Universidad ECCI