

# Rómulo Garza award given to outstanding Tec researchers



Photos: Udell Jiménez

Research into ethics, photonics, nutrition, optics, ferromagnetic liquids, and detecting glucose has received the **Rómulo Garza Award for Research and Innovation**.

This recognition was given at the **50th Research and Development Conference** as an incentive for research performed by research professors and students from Tec de Monterrey.

*"We need people like you in Mexico who are determined, dedicated, and go above and beyond both nationally and internationally,"* said Eugenio Garza Herrera, President of Xignux and grandson of Rómulo Garza, at the beginning of the ceremony.

This award is given in the categories of Most Citations, Published Books, and Research Projects by students from PrepaTec, undergraduate, and postgraduate areas.

## **SHE'S DEDICATED HER LIFE TO STUDYING ETHICS AND CULTURE**

Doctor **Dora Elvira García** was awarded the **INSIGNIA Researcher Prize** for her work over the past 16 years as a full-time research professor at Tec de Monterrey.

She's the first woman to receive the prize in this category and this is the first time it's been awarded in the area of **Humanities**.

The Associate Dean of Research at the **School of Humanities and Education** has published more than **70 articles in scientific journals**, 75 book chapters, and 12 science books over the course of her career.

Among other positions, she's a Level III member of the **National Research System** and coordinator of the UNESCO Chair of Ethics and Culture of Peace for the promotion of Human Rights at the Tec.

*"The role of humanities is to think critically and reflexively, always with the goal of building a better society. My students have been encouraged and motivated to be better every day,"* she said when receiving the prize.



width="900" loading="lazy">

## **SMART DIETS TO IMPROVE NUTRITION**

Doctor **Daniela Gordillo Bastidas** coauthored the book *Nutrición Molecular (Molecular Nutrition)*, published by McGraw Hill Education, with her sister Elizabeth. It won an award in the category of **Published Book**.

The text focuses on an analysis of the molecular bases for chronic degenerative diseases and how genes can be "turned on" and "turned off" through diet and lifestyle to prevent and control them.



Molecular nutrition proposes “smart diets”, which consist of a precise prescription of foods and nutrients to prevent, treat, or control a disease.



width="900" loading="lazy">

## IMPROVING THE TRANSMISSION OF INFORMATION VIA QUANTUM CHANNELS

**Raúl Hernández Aranda and Benjamín Pérez García**, from the **School of Engineering and Sciences** at Monterrey campus, won an award for the publication of their article “Characterizing quantum channels with non-separable states of classical Light”.

Through their research in photonics, they analyzed the security of quantum transmission channels for communication by using a classical state of light to prevent “noise” or loss.

They determined the **degradation** of the **information channel**, the first time it’s been demonstrated that **classical states of light** can be used to analyze the behavior of a **quantum state**.

The article was published in 2017 in the scientific journal **Nature Physics**, with a Scopus CiteScore impact factor of 17.18, as it has 31 citations on Scopus.



width="900" loading="lazy">

## **OUTSTANDING STUDENT RESEARCH**

This year, awards were given to students from three academic levels for their research:

### **Progress on detecting glucose**

**Antonio Jiménez and Eduardo Sotelo**, students from the Monterrey campus, performed research into the synthesis and characterization of **nanocubes** for an **electrochemical device** that **detects glucose**.

Their **project**, “The Effect of Starch in the Green Synthesis of Cu<sub>2</sub>O Nanocubes and Their Application for Direct Electrochemical Glucose Detection”, was assessed by **Jorge Cholula Díaz** a professor from the School of Engineering and Sciences.





width="900" loading="lazy">

### **Solving a centuries-old optics problem**

Rafael González Acuña managed to **solve spherical aberration**, an optics problem that hadn't been solved in 2,000 years, through an exact formula with an analytical solution.

His project, "The general analytic and unique solution of a problem in Optics with more than 2000 years without solution: The solution to the spherical aberration" can be used to improve optical systems that use lenses.

His work was assessed by research professor **Julio Gutiérrez Vega**, from the School of Engineering and Sciences at Monterrey campus, who said: *"Making discoveries in the area of science is a pleasure we all share as human beings."*



*width="900" loading="lazy">*

### **Analyzing the behavior of ferromagnetic liquids**

The student **Celine Rojas Schröter** performed research into the behavior of the attraction between a **ferromagnetic liquid** and a **magnetic field** depending on the temperature of the **liquid**.

The work explains the behavior of this type of liquid when it's subjected to different temperatures, as well as its magnetic response to these changes.

The project was assessed by **Rodrigo Ponce Díaz**, principal of the Eugenio Garza Lagüera High School.





width="900" loading="lazy">

## RECOGNIZING THE WORK OF RESEARCHERS

The awards were set up in memory of businessman Rómulo Garza, who encouraged research. They're given by **Tec de Monterrey** and **Xignux**, the institutions at which he was a board member and founder.

They've been handed out for 45 years in recognition of the work of researchers at Tec de Monterrey, and the winners receive an economic incentive and a Rómulo Garza sculpture.

*"It's really exciting to attend these events to give recognition and see so much talent and so many people who inspire an institution,"* said Salvador Alva, President of Tec de Monterrey, at the end of the ceremony.

*"At Tec de Monterrey, we believe that one way of dealing with change is through education and research, in order to make solid and valuable contributions that provide solutions to society's issues,"* he said.

## READ MORE NEWS AT CONECTA:

<https://tec.mx/en/news/national/research/tec-backs-science-number-researchers-grows-124-10-years>

