

Mexico, Member of ICHMT (1)

Report on 30th Mexican International Congress in Mechanical Engineering (SOMIM 2024)

Abel Hernandez-Guerrero and J. Luis Luviano-Ortiz



Abel Hernandez-Guerrero, Ph.D.,

University of Guanajuato, Mexico, abel@ugto.mx

<https://somim.org.mx>

These are the 2024 activities that were carried out by SOMIM, the Mexican Society of Mechanical Engineers:

The Annual International Mechanical Engineering Congress was held at the City of Queretaro, in Central Mexico, with the support of the Polytechnic University of Queretaro. There were tracks in just about all the ME domain: Mechanical Design, Manufacturing and Materials, Mechatronics, Theoretical Mechanics, Thermal-Fluids, and Education in Engineering. There was an attendance of more than 100 researchers and more than 250 students from many national universities.

145 works were presented with 6 keynote speakers sessions:

- Ernesto Hernández, Ford Motors Company, "Quality in the auto-mechanical industry, a luxury or a need ?"
- Marcelo del Valle, Kiewit, "The Mechanical Engineer in EPC, beyond the productive, commercial, and service sectors"
- Salvador M. Aceves, Technological Institute of Celaya, "Transport technologies to mitigate the environmental pollution and the climatic change"
- Ilse Cervantes, CICATA, "Perspectives in electro-mobility in Mexico"
- Ángel Iván García, CIDESI, "Additive manufacturing and artificial intelligence, key technologies in the 4RI"
- Crescencio García, Monterrey Tech, "Collaborative robots in mechanical engineering: towards a new era in automation"

Also, throughout the year many webinars were organized in different fields with specialized people providing the most-up-to-date developments in those areas.

Student activities are also supported year-around by the society via the SOMIM Student Chapters; SOMIM has a close collaboration with the American Society of Mechanical Engineers (ASME).

Specialized courses were also offered providing information on new techniques and discussion of new emerging fields, such as in aerospace, material, and composites-based design, etc.

Other smaller conferences were also supported by the society such as the Aerospace Week 2024.

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Activities of the Mexican Society of Mechanical Engineers

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Abel Hernandez-Guerrero, Department of Mechanical Engineering,
University of Guanajuato, abel@ugto.mx



J. Luis Luviano-Ortiz, Department of Mechanical Engineering,
University of Guanajuato, luis.luviano@ugto.mx

Along the year the Mexican Society of Mechanical Engineers organized 33 webinars in all fields, mechanical design, manufacturing and materials, theoretical mechanics, thermal-fluids, education, etc. The webinars were well attended and were provided by experts in the field of different countries. The specific topics varied from bio-inspired design, to ChatGPT use in interpreting experimental results, to optical systems and spectroscopy for material characterization, to effect of renewable energy in electrical cars, etc. It is important to note that 1/3 of the webinars were provided by female professionals!



The annual congress was held September 24-27, at the city of Guanajuato, a beautiful and picturesque colonial town in the center of Mexico.

The congress gathered more than 500 attendees from 37 institutions/research centers/companies and there were 125 papers presented. There were top notch keynote lectures by the State Secretary of Economy (“Key issues in technological development, manufacturing and technology transfer in the world”), by a rep from the MABE company (MABE is a major Mexican multinational company that designs, produces, and distributes white goods (home appliances) to more than 70 countries worldwide. It is one of the largest appliance manufacturers in the world) giving a speech on “Design challenges, innovation and technology in the development of home appliances, from “made” in Mexico to “created” in Mexico”; by GE Vernova Gas Power “The future of energy”, and by the GKN company “GKN facing the competitiveness in the car engine business” (the car engine business spans high-capital manufacturing by major manufacturers like Toyota, Volkswagen, and Hyundai, to specialized aftermarket services including engine rebuilding, tuning, and repair. Key opportunities exist in performance upgrades, diagnostic services, and sustainable engine solutions. Success requires technical expertise, specialized equipment, and strong marketing to industrial or consumer clients).

During the congress there was a recognition to the professional development of 3 leading mechanical engineering researchers (note: one of the three recognitions is dedicated to a young-emerging professional).

There were 5 technical competitions to students in attendance, and 6 workshops were offered in SolidWorks, Welding Procedures, PLC, Geogebra, Coretools and TRIZ, and OpenFoam.

At the congress a big effort was carried out to incentivize the forming of student chapters to bring more professional activities throughout the country.