# EECI-IGSC-2019 report

The 2019 EECI International Graduate School on Control edition, www.eeci-igsc.eu , technically co-sponsored by IEEE CSS and IFAC, took place from 14 January 2019 to 27 July 2019. The 22 modules of one week each were taught by *Anuradha Annaswamy, Alessandro Astolfi, Calin Belta, Marco Campi, Ruggero Carli, Stefano Di Cairano, Guillaume Drion, Christopher Edwards, Alessio Franci, Leonid Fridman, Simone Garatti, Antoine Girard, Tarek Hamel, Alberto Isidori, Hassan Khalil, Ilya Kolmanovsky, Qi Lü, Robert Mahony, Lorenzo Marconi, Jaime Alberto Moreno Pérez, Romeo Ortega, Daniel Ossmann, Wei Ren, Witold Respondek, Pierre Rouchon, Ricardo Sanfelice, Giordano Scarciotti, Luca Schenato, Johannes Schiffer, Rodolphe Sepulchre, Jeff Shamma, Jochen Trumpf, Andreas Varga, Jiongmin Yong, Enrique Zuazua,* and were held in worldwide universities: Berlin, Genoa, Istanbul, KAUST, L'Aquila, London, Madras, Padova, Paris-Saclay, Rio de Janeiro, Sichuan, St Petersburg, Zurich.

Total number of participants: 432 (86 female; 346 males)
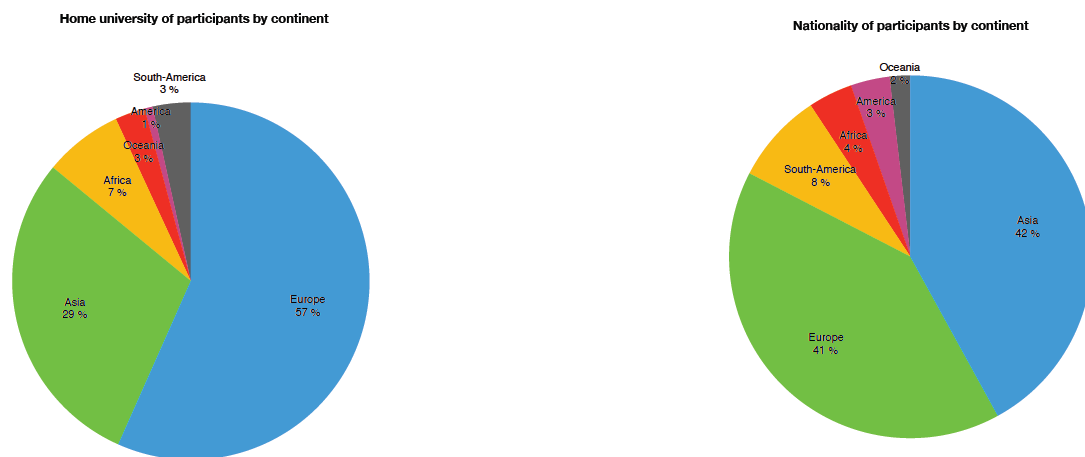
Courses taught: Formal Methods in Control Design - from Discrete Synthesis to Continuous Controllers; Practical Adaptive Control; Neuronal Excitability: Modeling, Control and Interconnection Principles; Sliding Mode Control and Observation; The Scenario Approach: Making Decisions in an Uncertain World; High-Gain Observers in Nonlinear Feedback Control; Model-Based Fault Diagnosis - a Linear Synthesis Framework using MATLAB; Energy-Based Control Design to Face the Challenges of Future Power Systems; Nonlinear Observers: Applications to Aerial Robotic Systems; Homogeneity Based Design of Sliding Mode Controllers; Game Theory and Distributed Control; Model Reduction for Linear and Nonlinear Systems; Robust and Adaptive Output Regulation of Multivariable and Hybrid Systems; Distributed Coordination of Multi-agent Systems; Multi-Agent Distributed Optimization and Learning over Wireless Networks; Predictive and Optimization Based Control for Automotive and Aerospace Applications; Introduction to Geometric Nonlinear Control Theory and Applications; PDE Control; Stochastic Control; Stochastic PDE Control; Quantum Control.

Grants: 36 PhD students of nationality from developing countries (1 Algerian, 1 Argentine, 1 Brazilian, 1 Bulgarian, 2 Cameroonian, 1 Chinese, 2 Ecuador, 11 Indian, 3 Iranian, 2 Mexican, 1 Moldova, 2 Moroccan, 1 Polish, 3 Serbian, 1 Tunisian, 3 Turkish) have been awarded for a total of $15K supported by the IEEE CSS Outreach Fund.

M14-KAUST *taught by Jeff Shamma*

M24-SICHUAN *taught by Pierre Rouchon*