Minisymposium on Recent Trends in the Analysis and Computations of Nonlinear Partial Differential Equations and Systems

CMMSE'18

July 9–14, 2018, Rota, Cadiz - Spain

The aim of this session is to provide an opportunity for researchers to meet and discuss recent progresses in the analysis and computational simulation of nonlinear problems arising in the sciences, engineering and economics. Both the determination of the qualitative features of solutions of nonlinear models and the analysis of numerical methods to approximate their solutions are of special interest. Papers that study the existence and uniqueness of solutions of nonlinear partial differential equations, systems as well as relevant features of solution spaces are especially welcome. Works which emphasize the rigorous analysis of computational techniques to simulate the dynamics of complex models in the sciences, engineering and economics are solicited for this special session.

The session will not make emphasis on particular mathematical modeling of nonlinear problems, but rather on the investigation of analytical features of the solutions of underlying problems and the analysis of approximation techniques to simulate them. Both deterministic and stochastic models arising in science, engineering and economics are considered, and pertinent applications to the resolution of practical problems are expected.

Topics in this session include (but are not limited to):

- Deterministic and stochastic models in sciences, engineering and economics.

- Discrete and/or continuous nonlinear systems.

- Existence and uniqueness of relevant solutions.

- Approximation theory.

- Numerical methods (finite differences, finite elements, finite volumes, quadrature methods, etc.)

- Efficiency, accuracy, stability, convergence analyses.

- Preservation of positivity, boundedness, convexity or monotonicity.

- Multi-physical and/or engineering applications.

Organizers:

- J. E. Macías-Díaz (Universidad Autonoma de Aguascalientes, Mexico)

- Q. Sheng (Baylor University, United States)

Interested speakers please contact Professor J. E. Macías-Díaz at jemacias@correo.uaa.mx, or Professor Q. Sheng at qin_sheng@baylor.edu as soon as possible.