

**Mini-Symposium on Fluid Dynamical Laws for Complex Dynamical
Systems for the
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ABSTRACT

FLUID DYNAMICAL LAWS FOR COMPLEX DYNAMICAL SYSTEMS

Physical based procedures provide more efficient tasks, reliable results, robust processes and a wide perspective of the problem. In the same sense, promising nonintrusive approaches related to Complex System Analysis and Dynamical of Fluids applicability grow up and enriched this perspective. Simultaneously, theoretical exhaustive solution techniques can be applied to deal with the problem formulation or to understand the deep meaning of every part, at any stage, of the analytical model. This implies the benefit of that very invasive techniques become inoffensive if applied only to the formulation. Spite of these facts, neither the classical treatment, nor a newer one is better than any other when selecting an appropriate method out of a very specific context. So, the scope of this Mini-Symposium is related to any analytical, numerical, experimental, computational advances or measurements connected to real problems to face fluid dynamical problems and, complex dynamical problems in the very lax sense. This means that fluid dynamics topics can be very specific or very general involved and can be related to any field of applications. Topics of particular interest include but are not limited to:

- 1-Conic flow or Prandtl-Meyer flow
- 3-Navier-Stokes equations or Turbulent flow
- 5-Complex dynamical systems predictions
- 6-Nonlinear Multi-scale Multidimensional dynamical systems
- 7-Different strategies associated with Reduced Order Methods
- 8-Diffusion and Reaction-Diffusion equations
- 9-Fluid dynamical laws for social and industrial predictions
- 10-Fluid dynamical laws associated with the learning processes of dynamical systems
- 11- Estimation of the duration time of processes from laws of fluid dynamics
- 12-Any other topic or application of interest in this field.

The goals of this mini-symposium are to share experiences with international specialists, to discuss and consolidate the recently discovered and reported specific techniques and to open new areas of research that broaden the scientific knowledge in this field.

REFERENCES

- [1] R.T. Ferreyra, Supersonic needles at zero incidence, *American Institute of Aeronautics and Astronautics*, 46th AIAA Fluid Dynamic Conference, AIAA Aviation (AIAA 2016-4275), 2016. <http://dx.doi.org/102514/6 2016-4275>
- [2] R. T. Ferreyra, M. A. Ferreyra, Dynamical laws for statistical distributions: Application to complex system analysis. *Journal of Mechanical Engineering and Automation* Vol. **3(2)**: pp 46-53., 2013.