

5<sup>th</sup> International Workshop on Non-Equilibrium Thermodynamics –  
IWNET 2009

CUERNAVACA, MEXICO  
AUGUST 24 – 28, 2009



With the aim at continuing the efforts initiated by M. Grmela with the first edition of these workshops in 1996 [1], the 5th International Workshop on Non-Equilibrium Thermodynamics (IWNET 2009) was held in Cuernavaca (Mexico) from August 24 to August 28, 2009. Apart from the usual topics dealt with in the previous editions [2-4], namely the connection between non-equilibrium thermodynamics and complex fluid behavior and the methods and theories associated with such problems, this time particular emphasis was placed on areas of possible application of non-equilibrium thermodynamics that open up new challenges and perspectives. These areas include small and confined systems, granular matter, interfacial phenomena and biological systems.

The scientific program consisted of 9 invited lectures, 19 oral presentations and 21 posters. The invited lectures and oral presentations were accommodated in twelve sessions while the posters were divided in three different sessions. The topics dealt with by the invited speakers were relativistic irreversible thermodynamics, fluctuations, granular matter, interfacial phenomena, biological systems, confined systems, small systems, complex systems and finite-time thermodynamics. Apart from these topics, the contributed papers addressed problems in kinetic theory, simulation methods, polymeric systems, glasses and viscoplastic metals. There was ample time for informal discussions in a rather relaxed and pleasant atmosphere.

By the end of the workshop participants not only had the chance to widen their own views on the possibilities and present limitations of non-

equilibrium thermodynamics, but they also confirmed the importance of establishing self-consistent links between the different levels of description (each level addressing phenomena over a specific window of length and time scales) and were exposed to a variety of open and exciting problems. Some of these will probably be addressed in the 6th International Workshop on Non-Equilibrium Thermodynamics to be held somewhere in Norway in the summer of 2012. As in the past editions, the Proceedings of the workshop will be published in due course as a special issue of the Journal of Non-Newtonian Fluid Mechanics.

- [1] M Grmela: *J. Non-Newtonian Fluid Mech.* 69 (1997) 105 – 107.
- [2] R.J.J Jongschaap, HC Öttinger: *J. Non-Newtonian Fluid Mech.* 96 (2001) 1–3.
- [3] BJ Edwards, AN Beris: *J. Non-Newtonian Fluid Mech.* 120 (2004) 1 – 2.
- [4] VG Mavrantzas, AN Beris, ATzavaras: *J. Non-Newtonian Fluid Mech.* 152 (2004) 1.

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