



UC3M-ICMAT Seminar – 2014

Applied Probability and Statistics

Beyond Navier-Stokes: non-continuum fluid dynamics at the micro and nano scale

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11h00, ICMAT, *Aula Naranja*

Micro- and nano-scale fluid systems can behave very differently from their macro-scale counterparts. The conventional Navier–Stokes–Fourier flow equations do not capture the thermodynamically non-equilibrium and non-continuum behaviour that makes these flows uniquely complex. However, remarkably, there is currently no sufficiently accurate and computationally efficient fluid dynamic model. In this talk I will outline our ongoing work to develop and explore new methods for next-generation small-scale flow devices and controllers. I will describe the successes and failures of various hydrodynamic and molecular models in capturing the flow physics, and give examples of current test applications in micro- and nano-technologies.

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