



VABILO NA PREGLOV KOLOKVIJ /
INVITATION TO THE PREGL COLLOQUIUM

Prof. dr. Petros Koumoutsakos

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Četrtek / Thursday, 05. 04. 2012, ob / at 13:00

**Velika predavalnica Kemijskega inštituta / Lecture Hall at the
National Institute of Chemistry; Hajdrihova 19, Ljubljana**

**Multi-physics and Multi-scale
Simulations using Particles**

Particle methods provide a powerful vocabulary to describe a wide range of deterministic and stochastic processes exhibiting multi-scale characteristics. In this talk we introduce wavelet adapted particle methods for the Navier-Stokes equations and Adaptive Mesh Refinement for stochastic simulations of reaction-diffusion processes. We discuss the coupling of deterministic and stochastic algorithms and emphasize the mapping of these algorithms to multi/many-core architectures. We demonstrate the capabilities of particle methods by presenting applications ranging from fish swimming, to cancer induced angiogenesis and nano-fluidics.

Vljudno vabljeni! / Kindly invited!