ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ
ΣΧΟΛΗ ΕΦΑΡΜΟΣΜΕΝΩΝ ΜΑΘΗΜΑΤΙΚΩΝ ΚΑΙ ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ
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Αθήνα, 1/6/2017

Δ Ι Α Λ Ε Ξ Η

Ομιλητής: **Omiros Papaspiliopoulos**

(ICREA research professor, based at UPF)

Τίτλος : **«Markov chain Monte Carlo sampling for machine learning and inverse problems»**

Περίληψη: I will give a synthetic overview of the challenges, objectives and the state-of-the-art for prediction and uncertainty quantification using Markov chain Monte Carlo in Bayesian inverse problems and in machine learning. I will first show how some standard problems in inverse problems and machine learning can be formulated as problems of simulating from high (or even infinite) dimensional change of Gaussian measure. I will then show how Monte Carlo simulation algorithms can be constructed by discretising the Langevin stochastic differential equation and highlight the two most popular algorithms, the so-called preconditioned Metropolis-adjsuted Langevin algorithm (pMALA) and the preconditioned Crank-Nicolson Langevin (pcNL) algorithm. I will then refer to some recent work jointly with Michalis Titsias (Computer Science, AUEB) that has produced algorithms that achieve enormous efficiency gains relative to the state-of-the-art and demonstrate their success in high-dimensional regression and classification problems.

Η ομιλία θα δοθεί την **Τετάρτη 7 Ιουνίου 2017** και **ώρα 14:00**, στην Αίθουσα Σεμιναρίων του Τομέα Μαθηματικών, κτ. Ε΄, 2ος όροφος.

Η Επιτροπή Σεμιναρίων