

**ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ**  
ΣΧΟΛΗ ΕΦΑΡΜΟΣΜΕΝΩΝ ΜΑΘΗΜΑΤΙΚΩΝ ΚΑΙ  
ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ  
ΤΟΜΕΑΣ ΜΑΘΗΜΑΤΙΚΩΝ  
Ηρώων Πολυτεχνείου 5  
Πολυτεχνειούπολη Ζωγράφου, Κτήριο Ε  
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Αθήνα, 12/5/2017

## Δ Ι Α Δ Ε Ξ Η

**Ομιλητής: Panos Kevrekidis**  
**(Umass, Amherst)**

**Τίτλος : « From Discrete Solitons to Discrete Breathers and Lattice Traveling Waves: A Discussion of Spectral Stability and Associated Criteria»**

**Περίληψη :** The aim of this talk is to give an overview of stability criteria as they apply to a variety of coherent structures on infinite dimensional lattice dynamical systems. We will start with solitary waves of the discrete nonlinear Schrodinger equation (DNLS), discussing both a stability classification from the anti-continuum (uncoupled site) lattice limit and the famous Vakhitov-Kolokolov (VK) criterion. We will then extend considerations to discrete breathers primarily in nonlinear Klein-Gordon lattices, and will show how a direct analogy to the stability of their periodic orbits exists in connection to DNLS. Moreover, we will discuss a recently put forth criterion for their spectral stability which is analogous to the VK criterion and "falls back" on it upon reduction to the DNLS case. Lastly, we will discuss some intriguing connections of the discrete breather problem with that of traveling waves in (chiefly Fermi-Pasta-Ulam type) lattices and will devise yet another spectral stability criterion in that case too which will once again be the proper analogue of the VK one for the lattice traveling waves.

Η ομιλία θα δοθεί την **Παρασκευή 19 Μαΐου 2017** και **ώρα 13:30**, στην Αίθουσα Σεμιναρίων του Τομέα Μαθηματικών, κτ. Ε', 2ος όροφος.

Η περίληψη επισυνάπτεται.

Η Επιτροπή Σεμιναρίων