

ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ &  
ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ/ CCQCN SEMINAR

**Wednesday, 20 January 2016**

**11:30-12:30**

**3<sup>rd</sup> Floor Seminar Room**

***Stability induced by PT-symmetry breaking in stochastic oscillators***

*Dr. M. Lukovic*

*Max Planck Institute for dynamics & Self-Organization, Göttingen*

**Abstract**

We investigate the effects of dichotomous noise added to the harmonic oscillator in the form of stochastic time-dependent gain and loss states, whose durations are sampled from two distinct exponential waiting time distributions. We show that this oscillator system is unstable in the special (symmetric) case where the two waiting time distributions are identical and that it stabilizes only after introducing a significant amount of asymmetry (bias), consisting of much longer periods of loss rather than gain. This concept could be applied in the stabilization of light propagation in metamaterials (optical fibres) with random regions of asymmetric active and passive media.

