SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Forum de Physique Statistique @ ENS

Mercredi 13 Mars 2024, 12 :45
LPENS, 3 rue d Ulm, College de France
Domaines : cond-mat.stat-mech

Titre : *Earthquake statistical properties : an explanation for the distribution of magnitude and for the existence of aftershocks*

Orateur : **François Petrelis (LPENS)**

Résumé : *Earthquakes in nature follow several statistical properties. In particular, the distribution of energy released by an earthquake (Gutenberg-Richter's law) and the frequency of aftershocks after a large event (Omori's law) are both power-laws. By studying several earthquake models, we have shown that the Gutenberg-Richter law results from the spatial distribution of the stress field. This field is self-similar at large scale and for two dimensionnal systems can be modelled as a random surface. Using this analogy, a series of predictions is made that includes the Gutenberg- Richter law and the value of its exponent (so called b-value) together with the existence of aftershocks and their temporal distribution following Omori's law.*