SEMPARIS – Séminaires en région parisienne

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Seminaire exceptionnel

Mercredi 11 Décembre 2024, 17 :00
CPHT, D'ALEMBERT LECTURE HALL, ROOM 1Z18, ENS PARIS-SACLAY(Attention : unusual place and time !)
Domaines : cond-mat.other

Titre : *Nonlinear schrödinger equations : how can mathematicians be useful for physicists ? !*

Orateur : **Norbert Mauser (WPI & Inst CNRS Pauli, Vienna)**

Résumé : *Nonlinear Schrödinger equations (NLS) are a large class of partial differential equations, including Gross Pitaevskii equations as simple mean-field models of Bose Einstein Condensates. There is a large amount of work by «pure» mathematicians on increasingly refined analysis of NLS (e.g. studies of «blow up», «semi-classical analysis» etc), but few mathematicians tackle things where (experimental) physicists could need their help most : mathematical modeling - numerical methods - computer simulations. We present selected topics in our 15 years of cooperation of mathematicians with the experimental groups at AtomInstitut Wien (Jörg Schmiedmayer, Thorsten Schumm) in the frame of the Wolfgang Pauli Institute, like efficient numerics for the «time of flight» or «Generalized HydroDynamics». We conclude with general remarks on the increasing separation of mathematics from physics at (most) universities.*