



The Abdus Salam
International Centre for Theoretical Physics



**Advanced Workshop on
"Anderson Localization, Nonlinearity and
Turbulence: A Cross-Fertilization"**

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TITLE:

"Arnold diffusion in a chain of coupled pendula"

ABSTRACT:

A chain of pendula connected by nearest neighbor coupling is a near-integrable system if the coupling is weak. As a consequence of KAM, for most initial data the energy of each pendulum stays near its initial value for all time. We show that these KAM motions coexist with "diffusing" motions for which the energy can leak from any pendulum to any other pendulum, and it can do so with a prescribed itinerary. This is joint work with Vadim Kaloshin.