# Toda integrals as tools for measuring thermalisation in the Fermi-Pasta-Ulam-Tsingou model

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Many-body Hamiltonian systems describe a rich variety of physical systems and natural phenomena that range from atomic scale particles to celestial bodies. In recent years there has been an increasing interest in non-equilibrium phenomena which appear in such systems. This talk will focus on the Fermi-Pasta-Ulam-Tsingou (FPUT) model and its relevance to the integrable Toda lattice. In particular, we discuss the role of Toda integrals in the FPUT model for identifying energy diffusion and estimating equilibrium times. Finally, we examine the presence of KAM tori regimes at low energies and how their structure evolves as the system size increases.