220 Anniversary of W.R. Hamilton and 20th Anniversary of the Hamilton Mathematics Institute TCD Conference

Thursday, 13 March, 2 pm-3 pm

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Title: Resurgence in Quantum Mechanics

Abstract:

A classical Hamiltonian (possibly time-dependent) gives rise to an action functional on paths in phase space via a so-called first-order formalism. A few years ago, Yan Soibelman and I proposed a general scheme that yields formal expansions of the corresponding Feynman integral at critical points, which are classical trajectories. Moreover, it is expected that one can define non-perturbative values via resurgence and Borel resummation. Special cases include WKB asymptotics, heat kernels, and quantum Chern-Simons invariants.