PhD Colloquium

Jakob Reiffenstein

Canonical systems of differential equations

A canonical system is a (two-dimensional) vector-valued differential equation of the form $y'(t) = zJH(t)y(t)$ on a real interval. Here z is a complex spectral parameter, J is a fixed "signature matrix", and the Hamiltonian H is a 2×2-matrix-valued function whose values are positive semidefinite a.e. and that is locally integrable.
Equations of this form originate from Hamiltonian mechanics
(with one-dimensional phase space). They provide a unifying treatment for (and share some amount of theory with) various equations of mathematical physics, e.g., Schr̈odinger equations.

I will start by introducing the operator model of a canonical system and the go-to functions used for studying the spectrum of this operator: monodromy matrix and Weyl coefficient. This leads to the problem of determining the behavior of these functions, for which I will present methods as well as some examples that I find funny..

06 November, 15:00 – 15:45
im SR5, Oskar–Morgenstern–Platz 1 Universität Wien