DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
UNIVERSITY OF SOUTHERN DENMARK, ODENSE

Mathematics colloquium

Patrik Wahlberg
Linnæus University, Växjö

Thursday 23 April 2015, 14:15-15:30, IMADAs seminar room

Propagation of Gabor singularities for Schrödinger equations with quadratic Hamiltonians

Abstract:

We study propagation of the Gabor wave front set for a Schrödinger equation with a Hamiltonian that is the Weyl quantization of a quadratic form with non-negative real part. We point out that the singular space associated to the quadratic form plays a crucial role for the understanding of this propagation. We show that the Gabor singularities of the solution to the equation for positive times are always contained in the singular space, and that they propagate in this set along the flow of the Hamilton vector field associated to the imaginary part of the quadratic form. As an application we obtain for the heat equation a sufficient condition on the Gabor wave front set of the initial datum tempered distribution that implies regularization to Schwartz regularity for positive times. This is joint work with K. Pravda-Starov and L. Rodino.

Host: Wojciech Szymanski