Math 251C Topics in PDE — Semiclassical Analysis
Spring 2016. Lectures: MWF 10:00 a.m.—10:50 a.m., Room MS 6201
Instructor: Michael Hitrik
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Preliminary Syllabus:

This course is a continuation of Math 251B given in the winter quarter of 2016, where we developed the calculus of semiclassical pseudodifferential operators and discussed $L^2$ continuity properties and Gårding’s inequalities for pseudodifferential operators. The plan of the course for the spring, roughly speaking, is the following:

Beals’ characterization of $h$–pseudodifferential operators and inversion of elliptic operators. Functional calculus for selfadjoint pseudodifferential operators via almost analytic extensions and Helffer-Sjöstrand’s formula. Trace class pseudodifferential operators and Weyl’s law.


Metaplectic FBI-Bargmann transforms and Bergman kernels. Pseudodifferential operators on the FBI transform side and relation to Toeplitz operators. Pseudodifferential operators with holomorphic symbols and applications.

Recommended literature:


Grading:
In this course, we will have several homework assignments, distributed in class periodically. There will be no final written examination.