Proposal: Graduate course in singular integrals, 5,5 hp

Peter Sjögren

In the spring of 2013, I gave a rudimentary course on the basics of singular integrals, containing mainly the classical L^p bounds for operators defined by convolution kernels. The volume was 9 hours.

It would be most desirable to continue with more modern developments of the field, and this is what the proposal aims at. This would mean the space BMO and its relation with the singular integrals, and after that the main object would be the so-called $T1$ theorem. The proof of this result requires the introduction of some important tools like Carleson measures and paraproducts.

The teaching would consist of lectures and some exercise sessions, carried out by Peter Sjögren. The examination would consist of an oral exam and a few hand-in exercises.

The expected participants are graudate students in mathematical analysis and possibly mathematical physics.

The prerequisites are integration theory and functional analysis, and preferably basic distribution theory.

The course would consist of approximately 25 hours, tentatively 4 hours a week, in September and October 2013.