An Afternoon in Honor of Cora Sadosky

University of New Mexico, Albuquerque

Friday April 4th, 2014

Titles and Abstracts

Speaker: **Rodolfo H. Torres** (*University of Kansas, Lawrence*)

Title: **Cora Sadosky: Her mathematics and mentorship.**

Abstract: **In this talk we will present some snapshots of Cora Sadosky's career focusing on her intertwined roles as mathematician and mentor. We will present some of her contributions to specific areas of mathematics as well as her broader impact on the profession.**

Speaker: **Svitlana Mayboroda** (*University of Minnesota*)

Title: **Localization of eigenfunctions and associated free boundary problems.**

Abstract: **The phenomenon of wave localization permits acoustics, quantum physics, elasticity, energy engineering. It was used in construction of the noise abatement walls, LEDs, optical devices. Anderson localization of quantum states of electrons has become one of the prominent subjects in quantum physics, as well as harmonic analysis and probability. Yet, no methods predict specific spatial location of the localized waves. In this talk I will present recent results revealing a universal mechanism of spatial localization of the eigenfunctions of an elliptic operator and emerging operator theory/analysis/geometric measure theory approaches and techniques. We prove that for any operator on any domain there exists a "landscape" which splits the domain into disjoint subregions and indicates location, shapes, and frequencies of the localized eigenmodes. In particular, the landscape connects localization to a certain multi-phase free boundary problem, regularity of minimizers, and geometry of free boundaries. This is joint work with D. Arnold, G. David, M. Filoche, and D. Jerison.**

Speaker: **Jill Pipher** (*Brown University*) *Jill had to cancel.*

Title: **Multiparameter commutators and BMO spaces.**

Abstract: **Cora Sadosky's interest in Toeplitz operators led her to make some important contributions in the area of multiparameter theory of singular integrals, BMO spaces, and commutators. In this talk we'll focus on commutators, beginning with some of Sadosky's results in this area and then describing some more recent results on iterated commutators of Riesz transforms and even more general multiparameter CZOs.**

Speaker: **Alex Stokolos** (*Georgia Southern University*)

Title: **Complex and Harmonic Analysis in Non-linear Dynamics.**

Abstract: **We will discuss some applications of complex and harmonic analysis to the problem of stabilizing the chaotic solutions of a non-linear discrete autonomous dynamical system. This is a joint work with D.Dmitrishin, A.Khamitova, A.Korenovskiy and A.Solyanik**

Speaker: **Sergei Treil** (*Brown University*)

Title: **Two weight estimates following Arocena-Cotlar-Sadosky.**

Abstract: **I will explain the theory of generalized Toeplitz kernels by Arocena-Cotlar-Sadosky and its applications to two weight estimates of the Hilbert transform.**

Speaker: **Gustavo Ponce** (*University of California, Santa Barbara*)

Title: **The IVP for the Benjamin-Ono equation in weighted Sobolev spaces.**

Abstract: **We shall discuss results concerning the well posedness and some optimal uniqueness properties of the solutions to the IVP associated to the Benjamin-Ono equation. These results include some persistence property of the solution flow in weighted Sobolev spaces and some uniqueness properties of these solutions under conditions involving two and three different times. These results have been established in joint works with G. Fonseca and F. Linares, and in a recent work of Cynthia Flores.**