

**International Workshop
"Advances in Nonlinear Analysis"
University of Pittsburgh
March 13 - 15, 2014**

From Calderón-Zygmund theory to Euler
vortex patches

Joan Verdera

While working on a problem concerning classical Calderón-Zygmund operators in R^n with my coauthors Mateu and Orobitg, we found a simple auxiliary result which looked very appealing to us. As it turned out, it is the starting observation in Chemin's Theorem about boundary regularity of vortex patches for the Euler equation. In this talk I will describe the problem on maximal singular integrals we were working on and then I will review vortex patches and vortex states. I will finally mention a recent boundary regularity result for vortex states, which is joint work with Hmidi and Mateu.