

Cristina Benea (University of Nantes): **AKNS systems and
Iterated Fourier Integrals**

Iterated Fourier Integrals provide the answer to a question regarding AKNS systems with data in L^2 . The study of such systems for data in L^p with $1 \leq p < 2$, is far less technical and was done by Christ and Kiselev. The study of the mixed problem, with $1 \leq p \leq 2$, leads to an iterated Fourier integral operator associated to arbitrary intervals. This resembles a square function of Rubio de Francia, but in the end we will see that the answer is given by a vector-valued extension result.