Degraded mixing solutions for the incompressible porous media

Ángel Castro
ICMAT

I will present the construction of degraded mixing solutions for the IPM system. This system models the dynamics of an incompressible and viscous fluid in a porous media and under the gravitational force. When the initial density of the fluid just take two values the existence of solutions for IPM is known as the Muskat problem. In a previous work, together with D. Córdoba and D. Faraco, we show the existence of solutions in the unstable regime which consist of the mixing of the two densities. In this talk I will skech a new construction in which we show that the solutions, in average, mix in a linear way. This is a work in collaboration with D. Faraco and F. Mengual Bretón.