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**Eduardo Garcia-Juarez\*** (edugar@math.upenn.edu). *Global regularity for parabolic incompressible fluid interfaces.*

In this talk we consider several fluid dynamics scenarios where sharp interfaces between immiscible incompressible fluids appear. The main question will be whether the initial regularity of the interface is preserved in time or, on the other hand, the system develops singularities. We will start showing recent results on global regularity for P.L. Lions' conjecture on density patches evolving by inhomogeneous Navier-Stokes equations. Later, we will extend these results to piecewise-Hölder temperature fronts modeled by Boussinesq approximation, and we will end commenting some new results of global regularity for the Muskat problem with viscosity jump. (Received September 24, 2018)