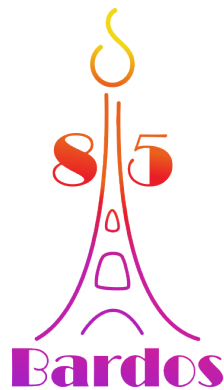


Kinetic equations and turbulence

On degenerate blow-up profiles for the semilinear heat equation

Frank Merle

With Hatem Zaag, we consider the semilinear heat equation with a superlinear power nonlinearity in the Sobolev subcritical range. We construct a solution which blows up in finite time only at the origin, with a completely new blow-up profile, which is cross-shaped. Our method is general and extends to the construction of other solutions blowing up only at the origin, with a large variety of blow-up profiles, degenerate or not.



In honor of Claude Bardos's 85th birthday