VEGA Luis

Remarks about the self-similar solutions of the Vortex Filament Equation.

I will review some of the properties of the self-similar solutions of the Vortex Filament Equation. This equation is also known as either the Localized Induction Equation or the binormal flow and is related to the 1d Schr\"odinger map and the 1d cubic non-linear Schr\"dinger equation. After looking at the uniqueness and asymptotic behavior of these solutions, I will recall the method developed with V. Banica to continue the solution once the singularity (a corner) is created. Issues concerning the lack of the preservation of linear momentum and the no-continuity of some critical Besov norms will be considered. Finally I will mention some recent work done with F. De La Hoz about the evolution of a regular polygon.