Resurgent reduction near a simple turning point

Eric Delabaere
Université d'Angers

For a given singularly perturbed differential equation with a simple turning point, various theorems allowing to reduce locally this differential equation to the Airy equation are already known. For instance, under some hypotheses, this can be done through a pre-Borel summable change of variable (cf. T. Kawai et al) or even a resurgent one (F. Pham). This last result (which actually can be extended to a local reduction near a mutiple turning point) relies on a theorem of Ecalle which, according to the specialists, is not yet completly proved. In this talk we investigate directly the resurgent reduction problem near a simple turning point, developping tools which in turn could be interesting for proving the theorem of Ecalle.