SEMINARIO

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Gevrey versus q-Gevrey asymptotic expansions for some linear q-difference-differential Cauchy problem

Abstract: The asymptotic behavior of the analytic solutions of a family of singularly perturbed q-difference-differential equations in the complex domain is studied. Different asymptotic expansions with respect to the perturbation parameter and to the time variable are provided: one of Gevrey nature, and another of mixed type Gevrey and q-Gevrey. This asymptotic phenomena is observed due to the modification of the norm established on the space of coefficients of the formal solution. The techniques used are based on the adequate path deformation of the difference of two analytic solutions, and the application of several versions of Ramis-Sibuya theorem.
This is a joint work with Alberto Lastra.

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