STOKES GEOMETRY AND SUMMABILITY IN THE LINEARIZATION PROBLEM FOR A SINGULAR VECTOR FIELD

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Abstract. We study summability and a connection problem for a system of semi-linear equations - a transformation equation - related to the linearization problem of a singular vector field with an isolated singular point at the origin. The class of systems contains the so-called Noumi-Yamada system. Although the ODE case has still many interesting open questions, we will foucus our attention to the PDE case in my presentation. Indeed, I will state some new results and open problems concerning how the Stokes geometry is defined in the multi dimensional situation and the way how the closely related asymptotic analysis is done. By using notions in Stokes geometry we will show the summability of formal solutions (a so-called 0-parameter solution). A new problem in removal of singularities of functions of several complex variables is proposed in relation with summability in the multi dimensional situation. The connection problem for our equation is mostly an open quesiton, while we will show a recent result.

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