Normalizability, Orbital normalizability and Integrability of Polynomial System with Rank-one Resonant Singularity in 3D

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We examine the issue of normalizability, orbital normalizability and integrability of a critical point in three-dimensional polynomial system with rank-one resonant eigenvalues. In particular we consider when we can further simplify the normal form by an analytic change of coordinates to get a reduced normal form. We introduce the monodromy map of the reduced normal form, and relate this to the corresponding normal form for two-dimensional maps.