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Chains in CR geometry as geodesics of a Kropina metric

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Abstract

Chains are natural family of curves on a CR manifold. They satisfy a second order ODE and play a role of geodesics in CR geometry. In this talk, we show that chains can be characterized as geodesics of a certain Kropina metric (a singular Finsler metric). As an application, we reprove and generalize some important facts on chains: (i) Chains determine the CR structure up to conjugate, (ii) Two nearby points can be joined by a chain. This is joint work with Jih-Hsin Cheng, Vladimir S. Matveev, and Richard Montgomery.