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A characterization of chains in dimension three

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Abstract. Given a 3-dimensional (para-)CR structure, its family of chains defines a 3-dimensional path geometry. We provide necessary and sufficient conditions that determine whether a path geometry in dimension 3 arises from the chains of a CR or para-CR 3-manifold. We demonstrate how our characterization can be verified computationally for a given 3-dimensional path geometry and discuss a few examples.

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