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Non-branching on metric measure spaces with Ricci curvature bounded below

On a smooth Riemannian manifold, the uniqueness of a geodesic given initial conditions follows from standard ODE theory. In this talk, I will extend a version of this result to the setting of RCD(K,N) spaces, which are metric measure spaces satisfying a synthetic notion of Ricci curvature bounded below first introduced by Sturm-Lott-Villani. To do so, I will also generalize a well-known result of Colding-Naber concerning the Hölder continuity of the geometry of small balls along geodesics to this setting.