Glued spaces and lower Ricci curvature bounds

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We consider two compact (weighted) Riemannian manifolds with boundary and Bakry-Emery (Ricci) tensor bounded from below. In this talk I will present conditions on the second fundamental form and the weighted mean curvature of the boundary such that the metric gluing w.r.t. isometric parts of the boundaries satisfies a curvature-dimension condition in the sense of Lott, Sturm and Villani. More precisely the metric glued space is the collapsed limit of closed Riemannian manifolds with Ricci curvature bounded from below. Moreover these boundary conditions are also necessary for the curvature-dimension condition to hold on the glued space. This generalizes a theorem by Kosovskiĭ for a gluing between Riemannian manifolds with an Alexandrov lower curvature bound.