Perelman's entropy functionals for manifolds with conical singularities

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Abstract. We discuss Perelman's entropy functionals λ and ν_- as well as Ricci expander entropy functional ν_+ on a class of manifolds with isolated conical singularities. On such manifolds, a singular Ricci de Turck flow preserving the isolated conical singularities exists by our previous work. We discuss that the entropies are monotonous along the singular Ricci de Turck flow. We employ these entropies to show that in the singular setting, Ricci solitons are gradient and that steady or expanding Ricci solitons are Einstein.

This is joint work with Prof. Klaus Kröncke from Hamburg University.