Geometrization of 3-manifolds

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It is very classical that every surface can be uniformized. In dimension 3, the analogue statement was conjectured by Thurston, then proved by Perelman, and is by now the starting point of most recent results in the area. However, a key shortcoming of Perelman’s geometrization theorem is that it only applies to (interiors of) compact manifolds. In fact, it is fair to say that when one considers general 3-manifolds, not much is known. In this talk I will recall the geometrization of compact manifolds and discuss what can be said or cannot be said in the general case.