Analytic Approaches to the Moduli Space of Curves

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A compact Riemann surface is described alternately as a one-dimensional complex manifold or as a certain equivalence class of metric surfaces or as an algebraic curve (zero set of a complex polynomial of two variables). Thus the moduli space of algebraic curves (of a fixed topology) arises in settings beyond the algebro-geometric, and so its study is far too important to be left entirely to the algebraists (despite the natural advantages of their perspectives and technology). In this talk, we discuss analytic and synthetic geometric approaches to moduli spaces of curves.