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**Sudeb Mitra\*** (smitra@qc1.qc.edu), Department of Mathematics, Queens College, CUNY, 65-30 Kissena Boulevard, Flushing, NY 11367. *Holomorphic motions in families of Riemann surfaces*. Preliminary report.

If  $E$  is a closed subset of the Riemann sphere, its Teichmüller space is a universal parameter space for the holomorphic motion of  $E$  over a simply connected complex Banach manifold. In this talk, we will discuss holomorphic motions of a closed subset  $E$  of a general hyperbolic Riemann surface  $X$ . In this setting, not only does the closed set  $E$  move, but also the Riemann surface structure varies holomorphically. The natural candidate for a universal parameter space in this situation is the Teichmüller space of  $X$  rel  $E$ , denoted by  $T(X, E)$ . This space was introduced by A. L. Epstein. Its properties are described in his doctoral dissertation and in a forthcoming joint paper by C. J. Earle, A. L. Epstein and me. In this talk, we will discuss holomorphic motion of  $E$  in a “simple holomorphic family of Riemann surfaces” and the relationship of such a holomorphic motion with the Teichmüller space  $T(X, E)$ . (Received February 21, 2005)