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Steve Zelditch* (zelditch@math.jhu.edu), Department of Mathematics, Johns Hopkins University, Baltimore, MD 21218, and **Yanir Rubinstein**. *The initial value problem for geodesics in the space of Kahler metrics*. Preliminary report.

The equation for geodesics in the space of Kahler metrics in a fixed Kahler class on a Kahler manifold M is a homogeneous Monge-Ampere equation on $A \times M$, where A is an annulus. There are two natural problems for geodesics: the endpoint problem and the initial value problem. The endpoint problem fits into the traditional framework of boundary value problems for the Monge-Ampere equation, and has been studied by several authors (Semmes, Donaldson, Phong-Sturm, Chen-Tian, Song-Zelditch). The initial value problem has hardly been studied yet. It is natural for geodesics but seems very un-natural for the Monge Ampere equation. In this talk (joint work with Y. Rubinstein, developing joint work with J. Song on the endpoint problem) we will discuss solutions of the initial value problem, mainly on toric varieties where the equation can be solved explicitly. (Received July 28, 2008)