1035-00-1013 **Christopher S Frayer*** (cfrayer@ms.uky.edu). *Scattering with Singular Muira Potentials on the Line.*

We present some results on the one dimensional scattering problem for the Schrödinger operator $L_q = -\frac{\partial^2}{\partial x^2} + q$ with aclass of distributional potentials defined by the Miura map $a \to a' + a^2 := q$. Here we take $a \in L^1(\mathbb{R}) \cap L^2(\mathbb{R})$ so that $q \in H^{-1}(\mathbb{R})$ and the Schrödinger operator L_q is nonnegative. Specifically we study asymptotics of scattering solutions, show that transmission and reflection coefficients are well-defined, and establish uniqueness for the inverse problem. (Received September 18, 2007)