

WAVE MAPS ON HYPERBOLIC SPACE

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We'll survey some recent joint work with S.-J. Oh and S. Shahshahani on wave maps from 2d hyperbolic space taking values in a surface of revolution. First, we find 1-parameter families of harmonic maps indexed by how much the image wraps around the target manifold. In the case that the target is hyperbolic space we show that each of these harmonic maps is asymptotically stable and then show a result in the direction of the stable soliton resolution conjecture. In the case that the target is the 2-sphere, we show that if the harmonic map wraps sufficiently far around the sphere, the Schrödinger operator obtained by linearization possesses a unique simple eigenvalue in its spectral gap. This precludes asymptotic stability via a linear dispersive mechanism, but other features of the model suggest there may asymptotic stability via a purely nonlinear mechanism called radiative damping.