1114-53-341   **Daniel M. Kane** and **Joseph Palmer***, j5palmer@ucsd.edu, and **Álvaro Pelayo**.
Understanding semitoric integrable systems by lifting equations from $\mathrm{SL}(2,\mathbb{Z})$.

A semitoric integrable system is a 4-dimensional integrable system in which one of the integrals generates a Hamiltonian S^1-action. Pelayo-Vũ Ngọc have recently established a classification theorem for such systems analogous to Delzant's classification of toric systems. I will present a method of defining a natural metric space structure, and thus topology, on the moduli space of semitoric systems (with a fixed number of focus-focus singular points) by exploiting this classification. This space is not connected but we describe its connected components. To show that these components are themselves connected we introduce semitoric fans (in analogy to the fans of toric varieties, which we call toric fans) and a new method related to $\mathrm{SL}(2,\mathbb{Z})$ to understand toric and semitoric fans. (Received September 01, 2015)