1117-57-376   **Margaret F Symington*** (`symington_mf@mercer.edu`), Department of Mathematics, Mercer University, 1501 Mercer University Drive, Macon, GA 31207, and **Sonja Hohloch**, **Silvia Sabatini** and **Daniele Sepe**. *From Hamiltonian S^1-spaces to semi-toric systems.* Preliminary report.

A Hamiltonian S^1-space is a compact four-manifold equipped with an effective Hamiltonian S^1-action. Karshon classified such manifolds and determined necessary and sufficient conditions for the circle action to extend to an effective Hamiltonian T^2-action, thereby defining a completely integrable system that is toric. When such an extension fails to exist, it may still be possible for the Hamiltonian S^1-action to underlie a semi-toric system, as defined by Pelayo and Vũ Ngọc. In this talk, I will describe necessary and sufficient conditions for the S^1-action to extend to an $S^1 \times \mathbb{R}$-action that defines

a semi-toric system on the manifold. I will also describe a blow-up in the semi-toric category that we use to prove the result. This is joint work with Hohloch, Sabatini and Sepe. (Received January 18, 2016)