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**Philip Boyland\*** (boyland@math.ufl.edu), PO BOx 118105, Gainesville, FL 32605. *Surface dynamics lifted to Abelian covers*. Preliminary report.

Lifting to a covering space is a standard way of unraveling dynamics. We study the lifts of rel pseudoAnosov (pA) maps on surfaces to Abelian covers. Very roughly, the eigenvalues of modulus one of the induced action on homology correspond to a free Abelian cover with a transitive lift of the map and dense leaves of the lifted invariant foliations and those off the unit circle yield semiconjugacies from the lift of the map on the universal Abelian cover to a hyperbolic linear map, or equivalently, they yield transverse, invariant distributions on the surface. We also give conditions for the sharpness of the entropy estimates coming from twisted homology in the covers which correspond to center directions of the action on homology. This is joint work with Gavin Band. (Received January 29, 2008)