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**Jeffrey Adams\*** (jda@math.umd.edu), Mathematics Department, University of Maryland, College Park, MD 20742, and **Peter Trapa, Marc van Leeuwen** and **David Vogan**. *Computing Hermitian Representations of Real Groups*. Preliminary report.

Abstract: Suppose  $G$  is a real reductive Lie group. One of the classical problems in representation theory is to describe completely the set  $\widehat{G}_u$  of irreducible unitary representations of  $G$ . There are still complete answers only for some special cases. This is one of the primary goals of the Atlas of Lie Groups and Representations project, and its accompanying software.

The first step is to compute the Hermitian representations: those representations which admit an invariant Hermitian form (it is unitary if this form is positive definite). This is known by work of Knapp and Zuckerman. I will describe how this manifests itself in the Atlas software.

This is the first of a series of two talks; the other is by David Vogan. (Received February 10, 2009)