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Floyd L. Williams* (williams@math.umass.edu), University of Massachusetts, Department of Mathematics, 710 North Pleasant Street, Amherst, MA 01003-9305. *Casimir energy and local zeta function for higher rank symmetric spaces*. Preliminary report.

The calculation of Casimir energy for massless scalar fields on compact space forms of a non-compact, rank 1 symmetric space X has been carried out in full generality with the help of the Selberg trace formula. In joint work with Tomas Godoy and Roberto Miatello we consider the problem of carrying out this calculation when the rank of X exceeds 1, the initial step being a careful analysis of the local zeta function attached to X . We focus, for example, on X whose group of isometries is $SL(3, \mathbb{R})$ or $SU(2, 2)$ -two cases of immediate physical interest. (Received July 29, 2009)