1014-20-1488 **Daniel J Gagliardi*** (dgagliardi@stlawu.edu), Department Of Mathematics, Saint Lawrence University, Canton, NY 13617, and **Aloysius G Helminck**. *Algorithms for computing characters of symmetric spaces.*

The classification theorem for semisimple Lie algebras states that up to isomorphy any finite dimensional semisimple Lie algebra over an algebraically closed field is uniquely determined by the root system of a maximal toral subalgebra. Helminck established an analogous result for local symmetric spaces identifying twenty-four graphical structures called θ-diagrams (see: Algebraic groups with a commuting pair of involutions and semisimple symmetric spaces, Adv. in Math, 71:21-91, 1988). Implicit in each of these diagrams are two root systems $\Phi(A)$ and $\Phi(T)$ with A a maximal toral subalgebra in the local symmetric space and $T \supset A$ a maximal toral subalgebra in the corresponding semisimple Lie algebra. The weight lattices associated with $\Phi(T)$ and $\Phi(A)$ are denoted by Λ_T and Λ_A, respectively. There is a natural projection π from $\Phi(T)$ onto $\Phi(A)$, which extends linearly to Λ_T. It easily follows that $\pi(\Lambda_T) \subseteq \Lambda_A$. In this paper we prove the converse of this result. We will give both a direct proof and provide explicit algorithmic formulations for the characters of each in terms of the other. These algorithms can easily be implemented in a computer algebra package. (Received September 28, 2005)