1048-22-272   **G. F. Helminck*** (`g.f.helminck@uva.nl`), Korteweg de Vries Institute for Mathematics, University of Amsterdam, Plantage Muidergracht 24, 1018TV Amsterdam, Netherlands, and **A. G. Helminck**. *New results for p-adic symmetric spaces and their representations.*

Symmetric spaces are defined as the homogeneous spaces G_k/H_k with G a reductive algebraic group defined over a field k, $H = G^\sigma$ the fixed point group of an k-involution σ and G_k and $H_k = G^\sigma(k)$ denote the sets of k-rational points of G and H. These symmetric spaces occur in many problems in representation theory, geometry, singularity theory, the study of automorphic forms, etc. Best known are the symmetric spaces over the real numbers (also called *reductive symmetric spaces*). Over the last few decades many people have studied the structure and representations associated with these real reductive symmetric spaces, leading to a Plancherel formula in the mid 90's. More recently a number of people have started to study representations associated with symmetric spaces over finite fields and p-adic symmetric spaces. The latter is the natural next case to study now that the Plancherel formula for the real symmetric spaces has been completed. In this talk we present some recent results about these p-adic symmetric spaces and their representations. (Received February 09, 2009)