

Meeting: 1004, Bowling Green, Kentucky, SS 6A, Special Session on Representation Theory

1004-17-81 **Jeb F. Willenbring*** (jw@uwm.edu), Department of Mathematical Sciences, P. O. Box 0413, Milwaukee, WI 53201-0413, and **Gregg Zuckerman**, Mathematics Dept., PO Box 208283, New Haven, CT 06520-8283. *Small semisimple subalgebras of semisimple Lie algebras.*

We study certain questions about the decomposition of a representation of a semisimple Lie algebra when restricted to a semisimple subalgebra. Specifically, we discuss a proof of the following theorem: let \mathfrak{k} be an \mathfrak{sl}_2 -subalgebra of a semisimple Lie algebra \mathfrak{g} , none of whose simple factors is of type A_1 . Then there exists a positive integer b , such that for every irreducible finite dimensional \mathfrak{g} -module V , there exists an injection of \mathfrak{k} -modules, $W \rightarrow V$, where W is an irreducible \mathfrak{k} -module of dimension less than b . The hypothesis of this result may be modified to obtain a result for an arbitrary semisimple Lie subalgebra \mathfrak{k} . In order to explain this modification, we introduce the notion of a *small subalgebra* of \mathfrak{g} . (Received January 17, 2005)