

**COMPLEX SAFE IRREDUCIBLE REPRESENTATIONS  
OF NONSAFE COMPACT SIMPLE ALGEBRAS**

**Liviu Ionescu, National College Carol I, Craiova  
Str. I. Maiorescu 2-4, Craiova-200418, Romania.**

**Lucian Saliu , Department of Physics I, University of Craiova,  
Str. A. I. Cuza 13, Craiova-200585, Romania.**

**Abstract:** *By expressing the triangular anomaly-free condition in terms of the fully symmetric third order Casimir operator, and by solving this condition in an algebraic approach, we determine the first series of minimal complex safe irreducible representations of the  $SU(n)$  groups,  $n = 7 \div 14$ , by developing a kind of saturation technique for similar representations of the groups  $SU(5)$  and  $SU(6)$ . None of these representations of extremely large dimensions, of order  $10^5 - 10^9$ , are asymptotically free or accomodate the known fundamental fermionic matter fields. The main methods developed in literature of building up realistic complex and anomaly-free reducible representations of  $SU(n)$  are briefly reviewed.*