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Section:

7. Lie Groups and Lie Algebras

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Symmetry and Symmetry Breaking: An Algebraic Approach to the Genetic Code
The algebraic approach to the genetic code, which aims at explaining the degeneracies encountered in the genetic code as the result of a sequence of symmetry breakings that have occurred during its evolution, is briefly reviewed. Some new results on a generalized search for symmetries based on the representation theory of semisimple Lie algebras and their branching rules under reduction to semisimple subalgebras are presented. These results are based on joint work with J. E. M. Hornos, Y. Y. M. Hornos, F. Antonelli Jr. and L. Braggion.
References:
J. E. M. Hornos and Y. M. M. Hornos, Algebraic Model for the Evolution of the Genetic Code, *Phys. Rev. Lett.* **71** (1993), 4401-4405.
M. Forger, Y. M. M. Hornos and J. E. M. Hornos, Global Aspects in the Algebraic Approach to the Genetic Code, *Phys. Rev.* **E 56 (1997), 7078-7082.**