1070-53-326   **Craig J. Sutton*** (`craig.j.sutton@dartmouth.edu`), Dartmouth College, Department of Mathematics, Hanover, NH 03755, and **Carolyn Gordon** (`carolyn.s.gordonn@dartmouth.edu`), Dartmouth College, Department of Mathematics, Hanover, NH 03755. *Spectral isolation of naturally reductive metrics on simple Lie groups.*

This talk is motivated by the problem of determining the extent to which symmetric spaces of the compact type (e.g., spheres and semi-simple Lie groups with bi-invariant metrics) are spectrally determined. We recall that naturally reductive metrics are the homogeneous metrics that in some sense are most similar to symmetric metrics. We then show that within the class of naturally reductive left-invariant metrics on a compact simple Lie group G each metric is spectrally isolated. In particular, the bi-invariant metric on G is locally determined by its Laplace spectrum within this class. (Received February 15, 2011)

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