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**M. Zuhair Nashed\*** ([zuhair.nashed@ucf.edu](mailto:zuhair.nashed@ucf.edu)), Department of Mathematics, University of Central Florida, Orlando, FL 32816. *Inverse and Moment Problems in Geosciences - Revisited.*

The geosciences gave rise to some of the most interesting classical inverse problems. The early roots of generalized inverses, particularly the inner inverse, reside in geodesical studies. In this talk, I'll revisit moment problems and related inverse problems in the geosciences, and discuss new variants of the Backus-Gilbert method for reconstruction of a function from its moments. Some connections with sampling expansions will also be briefly considered. (Received September 22, 2011)