1154-49-1349 **Christian Gerhards*** (christian.gerhards@geophysik.tu-freiberg.de). *Inverse Magnetization Problems and Potential Field Separation.*

The Hardy-Hodge decomposition characterizes the contributions of a magnetization that can be determined uniquely from knowledge of the corresponding magnetic field. Based on this, it is possible to derive a geophysically reasonable setup that allows the unique separation of magnetic fields generated from sources on two separate spheres. If the source on the outer sphere is a compactly supported magnetization, then the two magnetic fields can be distinguished even if only the overall magnetic field is known on an external surface. We provide a rigorous derivation of that result as well as an iterative approximation scheme for the underlying minimization problem that allows the computation of Fourier coefficients of each of the two magnetic fields. (Received September 15, 2019)