

**NOTES ON RADON TRANSFORMS
IN INTEGRAL GEOMETRY**

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Abstract

These notes include the following topics: A thorough discussion of Radon's paper (1917); geodesic transforms on the sphere and associated analytic families of intertwining operators; the Radon transform on Grassmann manifolds; the generalized Minkowski-Funk transform for non-central spherical sections, and small divisors for spherical harmonic expansions; the Busemann-Petty problem. An accent is made on fractional modifications of Radon transforms and their application to geometric problems. Basic ideas and new results are presented in a systematic form.

Mathematics Subject Classification: Primary 44A12; Secondary 14M15, 53C65

Key Words and Phrases: Radon transform, fractional integrals, Grassmann manifolds, the Busemann-Petty problem