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This volume contains the proceedings of the AMS Special Session on Radon Transforms and Geometric Analysis, in honor of Sigurdur Helgason's 85th Birthday, held from January 4-7, 2012, in Boston, MA, and the Tufts University Workshop on Geometric Analysis on Euclidean and Homogeneous Spaces, held from January 8-9, 2012, in Medford, MA.

This volume provides an historical overview of several decades in integral geometry and geometric analysis as well as recent advances in these fields and closely related areas. It contains several articles focusing on the mathematical work of Sigurdur Helgason, including an overview of his research by Gestur Ólafsson and Robert Stanton. The first article in the volume contains Helgason's own reminiscences about the development of the group-theoretical aspects of the Radon transform and its relation to geometric analysis. Other contributions cover Radon transforms, harmonic analysis, Penrose transforms, representation theory, wavelets, partial differential operators on groups, and inverse problems in tomography and cloaking that are related to integral geometry.

Many articles contain both an overview of their respective fields as well as new research results. The volume will therefore appeal to experienced researchers as well as a younger generation of mathematicians. With a good blend of pure and applied topics the volume will be a valuable source for interdisciplinary research.

Readership

Graduate students and researchers interested in integral geometry, representation theory, harmonic and geometric analysis.

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