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Yuri A. Antipov and **Boris Rubin*** (borisr@math.lsu.edu), Department of Mathematics,
Baton Rouge, LA 70803. *A Generalization of the Mader-Helgason Inversion Formulas for Radon
Transforms.*

A new elegant inversion formula for the k -plane transform (k even) in the n -dimensional real Euclidean space was derived by S. Helgason in his recent book “Integral geometry and Radon transform”. Many years ago, in 1927, Ph. Mader derived interesting inversion formulas for the hyperplane Radon transform ($k=n-1$), which differ from the original ones by Radon and seem to be forgotten. We generalize these formulas to totally geodesic Radon transforms in any dimensions on arbitrary constant curvature space. (Received September 11, 2011)