

The fundamental identity for iterated spherical means and the inversion formula for diffraction tomography and inverse scattering

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$$M_y(0, k, k) = (8\pi^n \omega_{n-1} / k^{2n-4} \omega_n^2) F(y). \quad (7)$$

Also, from the definition (2) of the iterated spherical

In the case of inverse scattering the function $F(y)$ defined by (6) is the low-pass-filtered version of the so called interatomic distance function⁴