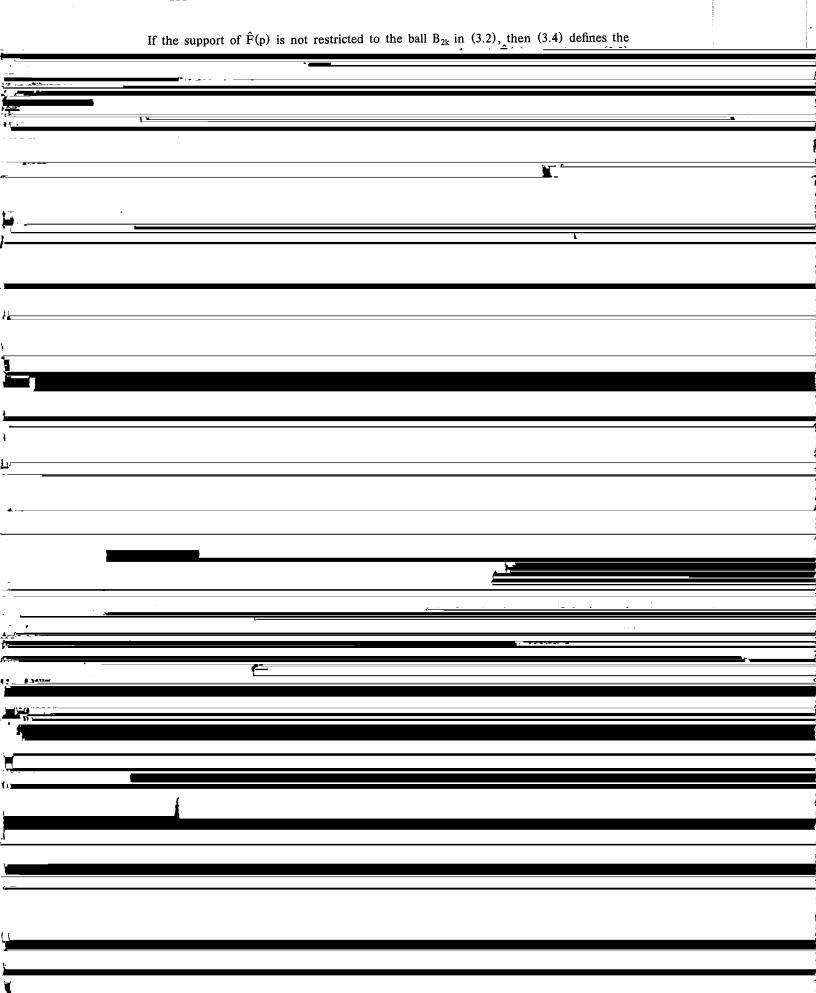


## Iterated Spherical Means in Linearized Inverse Problems

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	Abstract. We consider a representation of the function	
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	in terms of the iterated spherical mean of $\hat{F}(p)$ . Here, n is the dimension of the space. We	
	also review applications of such a representation to linearized inverse problems and prosons	
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and

$$Q_{LP}(x) = \frac{k^3}{\pi^2} \int_{\mathbb{R}^3} \int_{\mathbb{R}^3} |\nu - \mu| |f(k, \nu, \mu)|^2 e^{i(k\nu - k\mu) \cdot x} d\omega_{\nu} d\omega_{\mu}.$$
 (4.6)

where

$$\Psi(p,k,\nu) = \int U(x,k)e^{-ip\cdot x}dx,$$

S(a bal) consecents the incident plane wave in is a vector in R<sup>2</sup> v is a unit vector in R<sup>2</sup> and

 $O_{LP}(x) = \frac{ik}{4\pi^3} \int_{|\nu|=1}^{\infty} \int_{|\mu|=1}^{\infty} (1 - (\mu \cdot \nu)^2)^{1/2} |\mu \cdot \nu| e^{-ik|\mu \cdot \nu|y} \Psi_{sc}^{b}(y,\mu,k,\nu) e^{i(k\nu - k\mu) \cdot x} d\omega_{\nu} d\omega_{\mu}. (5.9)$ 

The formula (5.9) is a backpropagation inversion formula which was first obtained by A. J. Devaney [1] and is presented here in a slightly different form.

The case of Rytov approximation is analogous to Rorn approximation and con be seen a