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Extrapolation and filtering problems for isotropic random fields

Let $(\xi(x), \eta(x))$ be a homogeneous and isotropic random field on R^n and let observations of the field $\xi(x)$ on the sphere $S_n(r) = \{x : |x| = r\}$ be known. An algorithm is proposed for construction of the linear least square estimate $\hat{\eta}(y)$ of the value $\eta(y)$ for $y \in R^n$. The problem of optimality of the region of observations is discussed. The extrapolation problem is considered for random fields $\xi(x)$ which satisfy the equation $(\nabla^2 - c^2)\xi = w$ where w is a white noise on R^n.

Reference: M. Yadrenko, Spectral Theory of Random Fields, Opt. Software Inc., N. Y. (1983).