“Covariance and variogram matrix structures in space and time”

Abstract:
This talk presents properties of covariance matrix structures of second-order vector random fields, and that of variogram matrix structures of vector random fields with second-order increments. The characteristic properties are given for the covariance matrix function of the Gaussian or elliptically contoured vector random field, while these properties are pointed out not sufficient for other non-Gaussian vector random fields, such as a chi-squared, Rayleigh, binomial-chi-squared, K-distributed, skewed-Gaussian, or log-Gaussian random field. The talk also briefly surveys some recent advances on how to construct covariance matrix functions of second-order vector random fields and variogram matrix functions of vector random fields with second-order increments.