# Vector random fields in space-time with power law correlation structure

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Vector (multivariate, or multiple) random fields arise when several related random fields are observed simultaneously over time, space, or space-time, and are of considerable interest in geophysical, environmental, and information sciences. To construct a vector random field, a framework is needed for describing not only the properties of each component but also the possible cross-relationships among the components. In this talk we will attempt to propose some vector random fields with rational direct and cross covariance functions, and discuss their scaling behaviours and other properties.