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Filtering of set-indexed stochastic processes

Multiparameter and set-indexed stochastic processes have many important applications in the natural sciences and engineering. The concept of stopping, which plays a fundamental role for processes indexed by the real line, is less well understood in this more general framework. We introduce the concept of adapted filtering as an appropriate generalization of stopping. Applications in areas such as multivariate survival analysis and multivariate precedence tests will be discussed.