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Title: Statistical inference for spherical functional autoregressions

Abstract:

In this talk, we present the class of spherical functional autoregressions, and we discuss the estimation of the corresponding autoregressive kernels, based on a functional minimization criterion. We exploit isotropy assumptions and properties of the spherical harmonics basis to derive a more transparent representation of these autoregressions; hence we transform a nonparametric kernel estimation problem into the investigation of a growing sequence of spectral parameters. We are then able to investigate three kinds of asymptotics: a general consistency result (with rates) in mean square and sup norm; a quantitative central limit theorem; and a weak convergence result (under stronger smoothness conditions). Finally, we provide some insight into possible extensions and applications.