

COLLOQUIUM

A statistical-numerical approach for data fitting over two-dimensional manifolds

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Abstract: In this talk, a new approach for fitting data over two-dimensional manifolds will be presented. In particular, a generalized additive model with a suitable regularizing term is proposed. The estimation problem is recast over a planar domain via a conformal map. The conformal map and the resulting planar estimation problem are computed by a finite element approximation. The estimators are linear in the observed data values and classical inferential tools are derived. The application driving this research is the study of hemodynamic forces exerted by blood-flow over the wall of an internal carotid artery affected by an aneurysm. Based on joint work with Simona Perotto and Laura Sangalli (MOX, Department of Mathematics, Politecnico di Milano, Italy) and Tiziano Passerini (Mathematics and Computer Science, Emory University)

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