

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING
SEMINAR

Diffusion generated methods for target-valued maps

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Abstract: A variety of tasks in inverse problems and data analysis can be formulated as the variational problem of minimizing the Dirichlet energy of a function that takes values in a certain target set and possibly satisfies additional constraints. These additional constraints may be used to enforce fidelity to data or other structural constraints arising in the particular problem considered. I'll present diffusion generated methods for solving this problem for a wide class of target sets and prove some stability and convergence results. Ill give examples of how these methods can be used for the geometry processing task of generating quadrilateral meshes, finding Dirichlet partitions, constructing smooth orthogonal matrix valued functions, and solving inverse problems for target-valued maps. This is joint work with Dong Wang and Ryan Viertel.

Friday, October 26, 2018, 2:00 pm
MSC N304

MATHEMATICS
EMORY UNIVERSITY