



应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

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应用数学报告 (7)

报告人 / Докладчик / Speaker:

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题目 / Название / Title:

“Generating structured nonsmooth priors and associated primal-dual methods”

时间 / Время / Time:

2020年1月16日, 下午4点半至5点 / 16 Jan. 2020, 16:00-17:00 p.m.

地点 / Место / Venue: 1教211 / Building 1, Room 211

摘要 / Аннотация / Abstract:

The purpose of this lecture is to bind together and extend some recent developments regarding data-driven nonsmooth regularization techniques in image processing through the means of a bilevel minimization scheme. The scheme, considered in function space, takes advantage of a dualization framework and it is designed to produce spatially varying regularization parameters adapted to the data for well-known regularizers, e.g., total variation and total generalized variation, leading to automated (monolithic), image reconstruction workflows. An inclusion of the theory of bilevel optimization and the theoretical background of the dualization framework, as well as a brief review of the aforementioned regularizers and their parameterization, makes this chapter a self-contained one. Aspects of the numerical implementation of the scheme are discussed and numerical examples are provided.