应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（20）

报告人 / Докладчик / Speaker:
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题目 / Название / Title:
Two-phase segmentation for intensity inhomogeneous images by the Allen-Cahn Local Binary Fitting Model

时间 / Время / Time：**19 October, 2021, 10:00-11:00am**

地点 / Место / Venue: Zoom online meeting
ID：939 5891 1735
Password：565324

摘要 / Аннотация / Abstract:
We propose a new variational model by integrating the Allen-Cahn term with a local binary fitting energy term for segmenting images with intensity inhomogeneity and noise. An inhomogeneous graph Laplacian initialization method (IGLIM) is developed to give the initial contour for two-phase image segmentation problems. To solve the Allen-Cahn equation derived from the variational model, we adopt the exponential time differencing (ETD) method for temporal discretization, and the central finite difference method for spatial discretization. The energy stability of proposed numerical schemes can be proved. Experiments on various images demonstrate the necessity and superiority of proper initialization and verify the capability of our model for two-phase segmentation of images with intensity inhomogeneity and noise.