The Piecewise Constant Level Set Method with Probability Density Basis

Professor Li Hongwei
Department of Mathematics
Capital Normal University

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School of Physical and Mathematical Sciences

In the Piecewise Constant Level Set Method, the basis (characteristic) functions are polynomials of order $O(N-1)$, where $N$ is the number of phases under consideration. Instead, we propose probability density like functions, which are piecewise polynomials of order two, as the basis. This new basis functions lead to several advantages. The relationship between the new PCLSM and the Zach's method (for Potts model) is to be revealed. Furthermore, we combine the new PCLSM with Zach's method, which results in a very efficient algorithm for the Potts model. Numerical tests will be provided to validate the efficiency.

Speaker Biography

Li Hongwei is currently an Associate Professor at the Capital Normal University. He received his Ph.D. in computer science from the Institute of Software, Chinese Academy of Sciences in 2002. Li's research interests include image processing, inverse problem computation and large scale parallel computing.

Host: Prof. Tai Xue-Cheng, Division of Mathematical Sciences, School of Physical and Mathematical Sciences