

**Phase field model of variational
curve/surface smoothing
and its finite element approximations**

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School of Physical and Mathematical Sciences

In this talk, we present a novel phase field model for variational curve/ surface smoothing. Its Euler-Lagrange equation and weak variational form are all linear, which enables various simple numerical algorithms with solid mathematical foundation be employed to solve efficiently the phase field model. Here, the finite element method is used to solve the proposed phase field model, and the related error estimates are presented. Further, a new weighted phase field method with preserving features of curve/ surface is proposed. Various numerical examples of curve smoothing in two dimensional cases demonstrate the efficiency, effectiveness and robustness of the proposed numerical algorithms.

Host: Mathematical Imaging and Vision Research Group, Division of Mathematical Sciences, School of Physical and Mathematical Sciences

Website: <http://www1.spms.ntu.edu.sg/~image>

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