

**A NONLINEAR PARABOLIC EQUATION WITH
DISCONTINUITY IN THE HIGHEST ORDER AND
APPLICATIONS**

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We discuss viscosity solution theory for a class of nonlinear parabolic equations with discontinuities of the sign function type in the second derivatives of the unknown function. We modify the definition of classical viscosity solutions and show uniqueness and existence of the solutions. These results are related to the limit behavior for the motion of a curve by a very small power of its curvature, which has applications in image processing. This talk is based on joint work with Ming Chen.