THE FIELDS INSTITUTE
FOR RESEARCH IN MATHEMATICAL SCIENCES

ABSTRACTS 1.2

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Existence of solutions to degenerate parabolic equations via the Monge-Kantorovich theory

We show that the nonlinear degenerate parabolic equations

$$\frac{\partial s}{\partial t} = \operatorname{div}\left\{ s\, \nabla c^\star \left[\nabla \left(F'(s) + V\right)\right] \right\}.$$

admits a solution. The method used is variational. It requires less uniform convexity assumption than what is known in the literature (See Alt-Luckhaus). This class of problems includes the Fokker-Planck equation, the porous medium equation and the parabolic p-Laplacian equation.