János Karátson, Sergey Korotov, Michal Křížek: *On discrete maximum principles for nonlinear elliptic problems* ; Helsinki University of Technology, Institute of Mathematics, Research Reports A504 (2006).

Abstract: *In order to have reliable numerical simulations it is very important to preserve basic qualitative properties of solutions of mathematical models by computed approximations. For scalar second-order elliptic equations, one of such properties is the maximum principle. In our work, we give a short review of the most important results devoted to discrete counterparts of the maximum principle (called discrete maximum principles, DMPs), mainly in the framework of the finite element method, and also present our own recent results on DMPs for a class of second-order nonlinear elliptic problems with mixed boundary conditions.*

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