

Vysoké učení technické v Brně
Fakulta stavební
Ústav matematiky a deskriptivní geometrie

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**On the Systems of Nonlinear Evolution Equations – Existence
and Uniqueness via Theory of M-Matrices**

Přednášku přednese Dr. Michał Bełdziński



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Abstract. A system of nonlinear evolution equations with strictly monotone operators and perturbations satisfying certain counterpart of one-sided Lipschitz condition is considered. To reach the existence and uniqueness result, a certain remetrization method is proposed based on M-matrices theory and utilizing the Gelfand triple setting, which enables usage of a certain type of relaxed monotonicity. Asymptotic properties of the solution are also investigated by showing that any solution tends to the solution of a stationary problem. The results obtained are illustrated by considering a system of equations involving (q,p) -Laplacians and suitable non-monotone perturbations.

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