

Dynamical system related to primal-dual splitting projection methods¹

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Abstract

Motivated by some optimization problems (for instance, data science, in particular when dealing with inverse problems, image recovery), we introduce a dynamical system to the problem of finding zeros of the sum of two maximally monotone operators. We investigate the existence, uniqueness and extendability of solutions to this dynamical system in a Hilbert space. Under explicit time discretization of the dynamical system we obtain the best approximation algorithm for solving coupled monotone inclusion problems.

¹based on a joint work with E. Bednarczuk and K. Rutkowski, IBS PAN, Warszawa, to be appeared in J. Dynam. Differential Equations