Monotone Operators And Applications In Control And Network Theory

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Monotone operators stand at the junction between the study of variational problems, with particular instances related to optimization, game theory and control, on one side, and partial differential equations or quasi-variational inequalities on the other. The expected results catalyzed through this thematic programme have the potential to improve our understanding, industrial processes and ultimately our lives. Special focus of this thematic programme is also given to train the next generation of scientists with an awareness of the interconnections between these important areas. The programme 1 Relations 2 Monotone operators 3 Nonexpansive and contractive operators 4 Resolvent and Cayley operator 5 Fixed point iterations 6 Proximal point algorithm and method of multipliers. Relations. 2. Relations. a ∈ c a relation R on a set Rn is a subset of Rn — Rn a ∈ c dom R = {x | a "fy (x, y) a " R} a ∈ c overload R(x) to mean the set R(x) = {y | (x, y) a " R} a ∈ c can think of R as a "c set-valued mapping a "c, i.e., from dom R into 2Rn a ∈ c when R(x) is always empty or a singleton, we say R is a function a ∈ c any function (or operator) f : C a " Rn with C a " C Rn is a relation. (f (x) is then ambiguous: it can mean f (x) or {f (x)}