

1163-47-1166

Minh N. Bui* (mnbui@ncsu.edu), North Carolina State University, Department of Mathematics, Raleigh, NC 27695-8205, and **Patrick L. Combettes**. *Multivariate Monotone Inclusions in Saddle Form*.

We introduce the notion of a saddle operator for highly structured multivariate monotone inclusions involving a mix of set-valued, cocoercive, and Lipschitzian monotone operators, as well as various monotonicity-preserving operations among them. The properties of this saddle operator are discussed, and asynchronous block-iterative algorithms to find its zeros are presented. In turn, this allows us to solve the original system via a novel block-iterative splitting algorithm of great flexibility in terms of processing the constituent operators individually and exploiting their specific attributes. Comparisons with the state-of-the-art in monotone operator splitting will be carried out. Joint work with Patrick L. Combettes. (Received September 14, 2020)