Projective Splitting Methods for Decomposing Convex Optimization Problems

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Projective splitting methods for convex optimization and related problems were first devised about a decade ago and have been little used in practice so far. While based on the same basic operations and underlying philosophy as well-established decomposition method such as forward-backward (gradient projection), and Douglas-Rachford/ADMM methods, they are uniquely flexible. As was already known in 2009, these methods naturally adapt to the minimization of sums of arbitrary numbers of functions. More recent developments involve linear coupling operators between functions, "block-iterative" operation, potential asynchrony, and mixtures of forward and backward steps. This talk will provide a survey of projective splitting from an optimization point of view, and discuss some applications.