

NONOVERLAPPING DOMAIN DECOMPOSITION METHODS FOR THE TOTAL VARIATION MINIMIZATION

Chang-Ock Lee¹ and Changmin Nam¹

1) *Department of Mathematical Sciences, KAIST, Daejeon 305-701, Korea*

ABSTRACT

In this talk, we propose nonoverlapping domain decomposition methods for solving total variation minimization problem. We decompose the domain into rectangular subdomains, in which the local total variation problems are solved. In order to do that, we introduce local gradient operator and local divergence operator. The boundary values of the solution of local problems are sent to the adjacent subdomains so that the right hand sides of the adjacent local problems are changed. This can be done by considering the dual formulation of the total variation minimization problem. Sequential and parallel algorithms are presented. The convergence of both algorithms is analyzed and numerical results are to be shown.