

Expedited Computation in Engineering and Applied Mathematics: FETI and the Others

Sang Joon Shin

Seoul National University

ssjoon@snu.ac.kr

ABSTRACT

Efficient computation in a large-size numerical simulation has always been in demand, expediting the design process and prediction of nature phenomena. As one of the relevant efforts, finite element (FE) tearing and interconnection (FETI) approach has significantly contributed for the parallel computing algorithm by decomposing the huge algebraic representation into that of several subdomains with their coupled formulation. This presentation will introduce my latest research on FETI, with application in the structural mechanics and aerospace engineering. The presentation will include development of the other FETI variants, such as the displacement-based FETI (AFETI-DO), and their ongoing implementation on the aerospace hardware and components. In addition, a few studies conducted for the reduced-order modelling will also be introduced.