A Dimension Splitting Method for the 3D-Partial Differential Equations

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Abstract

In this talk we will introduce a dimension splitting method for numerical solution of 3D partial differential equations, in particular for the 3D Navier-Stokes equations. The method is designed to address the following two challenges: 1. Complex boundary geometry; 2. Boundary layer. Our method is different from the classical domain decomposition method, in which we convert the 3D sub-problems into 2D sub-problems in each sub-domain. This reduces significantly the computational work.