Institute of Geonics, Czech Academy of Sciences
Department of applied mathematics and computer science & IT4Innovations
Studentská 1768, Ostrava-Poruba

INVITATION TO THE LECTURES

OCTOBER 14, 2021 13:00 CONFERENCE ROOM

SLIP CONDITION IN SLOPE STABILITY ANALYSIS SOLVED BY FETI METHOD

Jakub Kružík, David Horák, Jaroslav Kruis, Tomáš Koudelka

Two methods are combined for description and assessment of slope stability. In the first step, elasto-plastic analysis of a slope is performed with suitable plasticity condition which results in determination of failure surface. The second step takes into account position of the failure surface and uses domain decomposition method for description of discontinuity along the failure surface due to landslide. Introduction of discontinuities into numerical methods causes difficulties but it can be done very efficiently within domain decomposition methods.

NODE RENUMBERING STRATEGIES FOR EFFICIENT DIRECT METHODS IN SELECTED PROBLEMS OF SOIL MECHANICS

David Hrbáč, Jakub Kružík, David Horák, Jaroslav Kruis

This presentation gives an experimental evidence of the computational and memory efficiency of standard reordering techniques available in PETSc library and their effect on the PETSc Cholesky solver performance. The sparse matrices chosen for numerical testing come from domain decomposition of the FETI type of the slope stability problem.