

Applications of Finite Elements Methods in solid state geophysics

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The recent progress of Finite Element Method (FEM) enables us to make various simulations easily. We are conducting three FEM simulations, (1) thermal analysis in high pressure apparatus, (2) elasto-plastic deformation analysis of metal disk to advance ultra high pressure generation, and (3) macroscopic physical properties of heterogeneous composite materials. In spite of the rapid progress of FEM, there still remain various problems and limitations. We would like to report not only our achievements but also critical problems we have encountered in FEM analysis.