

Simulation of Discontinuity Movement by Boundary Elements

Claus Oberste-Brandenburg

Institute of Mechanics, Ruhr-University Bochum, Bochum, Germany

For problems involving the movement of a discontinuity in a continuum, the explicit knowledge of its position is often of vital importance for the numerical simulation of the material response. The movement of this discontinuity can usually be expressed in terms of the state in its direct vicinity. However, this local state may be heavily influenced by the behavior of the bulk material. Thus, for an accurate description of the material response, both aspects may have to be taken into account. A numerical scheme which describes the movement of a discontinuity as well as the behavior of the bulk material is presented. The same discretization is used for the description of the interface propagation and the bulk behavior by employing a moving finite element scheme and the boundary element method. Results obtained using a three dimensional implementation of the scheme described above for a phase transformation problem are presented.

[View the extended summary](#)