Paper ID: 58860
interactive
student

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Fluid and Materials Sciences (2)

Author: Ms. Anastasia Shamina
Scientific Research Institute for System Analysis, Russian Academy of Sciences (RAS), Russian Federation

MATERIAL SCIENCE: STRESS INTENSITY COEFFICIENTS FOR ELLIPTIC AND ROUND CRACKS

Abstract

The durability of materials is a critical issue in space flight safety. The presence of latent defects in the material has a significant effect on the strength under different loads: the speed and direction of crack growth. In this paper, we study a three-dimensional elastic medium weakened by a system of plane cracks and one crack with a bend. The numerical method of boundary elements (the method of discontinuous displacements) is used as a method. The code is implemented in C ++. Comparison with known analytical results. The behavior of bending cracks is studied for various loads. The present study was supported by the program of Russian Academy of Sciences "Development of algorithms and codes for multiscale processes and combustion simulations". -18-118041190145-1 (0065-2019-0021).