# Analytical and Numerical Modeling of Curvilinear Crack Approaching a Bi-material Interface at Arbitrary Angle

Andrey Andreev[1]*, Amin Aminian[2]

[1]JIHT RAS, Izhorskaya st. 13 Bd. 2, Moscow, 125412 Russia

[2]NRU MPEI, Krasnokazarmennaya st. 14, Moscow, 111250 Russia

*andrey_andreev@ihed.ras.ru

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The article is devoted to development of a method for two-dimensional analytical and numerical investigation of equilibrium state of a curvilinear crack coming out at an arbitrary angle to the straight boundary between the elastic materials. There given the peculiarities concerned with this statement of the problem, which required the use of complex mathematical tools, and nontrivial effects associated with the boundary between the materials, where heterogeneity of the elastic properties and fracture toughness takes place, were demonstrated. The developed method allows obtaining the solution of the equilibrium state of the cracks reaching the boundary of elastic materials, for a wide class of problems of brittle fracture mechanics in frame of Irwin (stress intensity factors) criterion. Some intermediate results of the investigation are brought as a tool for generalization of the developed approaches and technics in the specified directions of research.