

# A solvable model of fracture with power-law distribution of fragment sizes

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The present paper describes a stochastic model of fracture, whose fragment size distribution can be calculated analytically as a power-law-like distribution. The model is basically cascade fracture, but incorporates the effect that each fragment in each stage of cascade ceases fracture with a certain probability. When the probability is constant, the exponent of the power-law cumulative distribution lies between -1 and 0, depending not only on the probability but the distribution of fracture points. Whereas, when the probability depends on the size of a fragment, the exponent is less than -1, irrespective of the distribution of fracture points.

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