Stochastic approach for fragmention - application to avalanches

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The aim of this talk is to introduce a probabilistic interpretation of a particular fragmentation equation. The originality of our approach is to use a fragmentation model which describes the avalanche phenomenon. We introduce first a new interpretation of the fragmentation equation by means of branching processes. A particular fragmentation kernel, which is discontinuous, leads to a stochastic model for the fragmentation phase of an avalanche. We prove that these processes are solutions of particular stochastic differential equations of fragmentation and construct a numerical approximation scheme. By applying this algorithm to our model of avalanche we emphasize also the fractal property. This is a joint work with Lucian Beznea (IMAR, Bucharest) and Oana LupaşcuStamate (ISMMA, Bucharest).

Submission for a contributed session