

Abstract Submitted
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Delayed fracture of porous media DANIEL BONN, LPS de l'ENS —
The fracture of porous media subjected to a constant load is studied. Contrary to homogeneous solids in which fracture usually happens instantaneously at a well-defined breaking strength, the fracture of a porous medium can occur with a delay, allowing to quantify the probability of material failure. Here we show that the fracture probability, a key property for risk analysis in civil engineering, is given by the probability of nucleating the first crack. The nucleation process can be understood quantitatively by calculating the activation energy for crack nucleation, taking into account the porosity of the medium.

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