

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

Sorting Category: 03.1.1 (T)

**Continuous Percolation by Discontinuities** JAN NAGLER, MPI DS, Goettingen — In the very recent article [Science **333**, 322 (2011)], O. Riordan and L. Warnke, state that (i) *any rule based on picking a fixed number of random vertices gives a continuous transition*, and (ii) that therefore *explosive percolation is continuous*. It is equally true that certain percolation processes based on picking a fixed number of random vertices are discontinuous. Here we resolve this seeming paradox. We exemplify this by studying an extremal case of a process that is continuous in the sense of Riordan and Warnke but still exhibits infinitely many discontinuous jumps in arbitrary vicinity of the onset of the continuous phase transition. Moreover, we demonstrate analytically that continuity at the phase transition and discontinuity of the percolation process are compatible and generic for certain competitive percolation systems.

Prefer Oral Session  
 Prefer Poster Session

Jan Nagler  
jan@nld.ds.mpg.de  
MPI DS, Goettingen

Date submitted: 13 Dec 2011

Electronic form version 1.4