

**[P3] Scaling of mean first-passage times in fractals**

*Hyun-Myung Chun, University of Seoul*

The mean first-passage time (MFPT) of random walk (RW) is one of the most important quantities that characterizes the diffusion dynamics on disordered media. A recent study claims that the MFPT in any isotropic media follows a simple power-law scaling with source-target Euclidean distance. In this study, we numerically calculate the MFPTs between two sites on critical percolation clusters in two dimensions and investigate a scaling behavior with the distance between them. We find that the MFPTs display a complex scaling behavior characterized by a crossover between short and long distance regimes and non-trivial dependence on source and target sites. These peculiar behaviors are attributed to structural heterogeneity of underlying fractals, which is quantified by the broad distribution of the random walk centrality.