

1127-60-288

**Michael Damron, Jack Hanson** and **Philippe Sosoe\*** ([psosoe@cmsa.fas.harvard.edu](mailto:psosoe@cmsa.fas.harvard.edu)),  
Cambridge, MA 02138. *New bounds on the chemical distance in 2D critical percolation.*

We consider the problem of estimating the length, in lattice spacings, of the shortest open connection between the two vertical sides of a square of side length  $N$  in critical percolation, when  $N$  tends to infinity. This is known as the chemical distance between the sides. Kesten and Zhang asked if this length is asymptotically negligible compared to the length of the "lowest crossing", whose length can be expressed in terms of arm exponents and thus calculated quite precisely on the hexagonal lattice. With M. Damron and J. Hanson, we answered this question in 2015. In this talk, we present improved estimates on the chemical distance, using a new iteration technique. (Received February 06, 2017)