1038-60-245 **Lionel Levine** and **Yuval Peres*** (peres@microsoft.com), 1 Microsoft Way, Redmond, WA 98052. *Internal aggregation with multiple sources.*

Start with n particles at each of k points in the lattice $\mathbf{Z}^d$, and let each particle perform simple random walk until it reaches an unoccupied site. The law of the resulting random set of occupied sites does not depend on the order in which the walks are performed. We prove that if the distances between the starting points are scaled by $n^{1/d}$, then the set of occupied sites has a deterministic scaling limit. In two dimensions, the boundary of the limiting shape is an algebraic curve of degree $2k$. (For $k = 1$ it is a circle, as proved in 1992 by Lawler, Bramson and Griffeath). The limiting shape can also be described in terms of quadrature identities for harmonic functions, revealing an underlying connection with potential theory and fluid mechanics. Joint work with Lionel Levine. (Received February 11, 2008)