Harmonic measure of DLA and percolation clusters ROBERT
ZIFF, LEONARD SANDER, DAVID ADAMS, University of Michigan — The prob-
lem of efficiently finding the harmonic measure of DLA and percolation clusters is
addressed. Deep inside fjords and inlets of irregular surfaces, traditional methods of
solving Laplace's equation become very inefficient. A new numerical algorithm that
efficiently solves for those measures is developed. The technique uses a step-by-step
approach that adds a shell at each time step to the diffusion front, and is essentially
linear in the number of sites considered. The method works for lattice systems and
discretized versions of continuum systems. With it, we have solved for the multi-
fractal exponents of the fractal surfaces. For DLA, we address the controversy of the
behavior of the harmonic measure deep inside the fjord. For percolation, we con-
sider both the relatively smooth accessible hull ($D = 4/3$), and the very invaginated
regular hull ($D = 7/4$).

Robert Ziff
University of Michigan