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Simulation of Helium-4 in Aerogel MARIOS NIKOLAOU, MATS WALLIN, Condensed Matter Theory, KTH, Stockholm, Sweden, HANS WEBER, Department of Physics, Luleå University of Technology, Sweden — The superfluid 4He transition in highly porous silica glasses, like aerogel and xerogel, have been studied experimentally [1]. The experiments obtain critical exponents that deviate from the bulk exponents for low porosity of the silica glass, and obtain evidence for violations of hyperscaling. We study this transition as a function of porosity within fractal diluted 3DXY models. We use the Wolff collective update method and go to larger system sizes than in previous simulation studies of the problem. We obtain results for the critical properties of the transition and compare with experiments.
1. J. Yoon et al., Phys. Rev. Lett. 80, 1461 (1998)

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