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Multifractal Analysis of the Metal to Insulator Transition in the Three-Dimensional Anderson Model LOUELLA VASQUEZ, Department of Physics and Centre for Scientific Computing, University of Warwick, CV4 7AL United Kingdom, ALBERTO RODRIGUEZ, Department of Physics and CSC, University of Warwick, CV4 7AL, UK, and Dpto de Fisica Fundamental, Universidad de Salamanca, 37008 Salamanca, Spain, RUDOLF ROEMER, Department of Physics and Centre for Scientific Computing, University of Warwick, CV4 7AL United Kingdom — The wavefunctions at the metal to insulator transition (MIT) of a disordered system within the Anderson model of localization have been shown to be of multifractal nature. In this paper we use a multifractal analysis to compute for the singularity spectra of very large wavefunctions at the band center. We will show that the singularity spectrum at the MIT is independent of the system size. We compare our results with recent findings and the Wegner prediction.

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