Self-avoiding random walks on fractals: scaling and multifractality

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We consider the model of self-avoiding random walks (SAWs) on disordered lattice exactly at the percolation thresold. Applying the pruned-enriched Rosenbluth method (PERM), we perform numerical simulation of SAW on the backbone of percolation cluster, having the fractal structure. The case of two, three and four dimensions is considered. Treating higher order correlations of SAWs, we study the nultifractal properties of the model. Our results bring about the numerical estimates of spectrum of critical exponents, governing the scaling laws of configurational properties of SAWs.