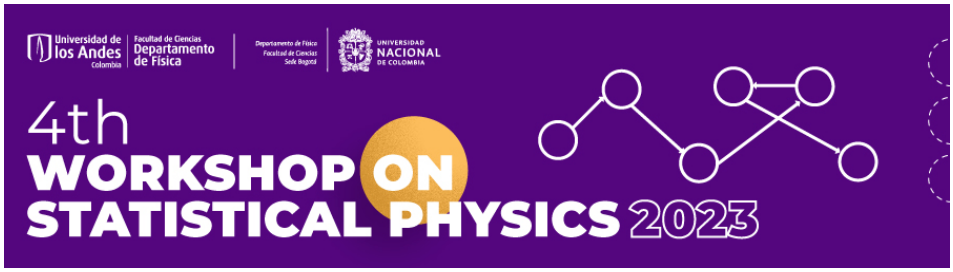

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Critical properties of the Ising model on fractal lattices

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In the realm of statistical physics, this study explores the critical properties of the Ising model on two fractal lattices with different Hausdorff dimensions ($d_H \approx 1.892$ and $d_H \approx 1.595$). By employing the Monte Carlo technique and the Metropolis algorithm, a numerical analysis is presented to determine critical temperature values and correlation length functions. Additionally, analytical methods are implemented, and their results are compared with numerically obtained results. Our findings confirm that fractals with finite ramification do not exhibit phase transitions, while those with infinite connectivity do.

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