Interference of fractals - a method to control the deterministic stochastic multiresonance SLAWOMIR MATYJASKIEWICZ, Department of Physics, King's College London, Strand, London, WC2R 2LS, UK — We present a new method to control the deterministic stochastic multiresonance in dynamical systems, which can be considered as a threshold-crossing systems, in the vicinity of chaotic crises. As an example we choose a two-dimensional chaotic map, where the threshold-crossing probability follows the overlap of the fractal structures of chaotic saddles and the basins of escape. Using a small periodic perturbation we induce interference like behaviour in fractal structure leading to significant changes of the information transmission through the system. The analytical theory based on topological model is in a reasonable agreement with the numerical results for mutual information between the input and output signal.

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