

Abstract Submitted
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Is the energy landscape of simple fluid a fractal? GERARDO NAUMIS, Depto. de Física-Química, Instituto de Física, UNAM — The energy landscape of fluids is known to be very important close to a phase or glass transition. Real landscapes are fractal objects so one can ask if something similar happens with the structure of the phase space topology. Thus, a simple modification of the Monte-Carlo algorithm is proposed to explore the topography and the scaling of the energy landscape. We apply this idea to a simple hard-core fluid. The results for different packing fractions show a power law scaling of the landscape boundary, with a characteristic scale that separates the values of the scaling exponents. Finally, it is shown how the topology determines the freezing point of the system due to the increasing importance and complexity of the boundary.

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