

Abstract Submitted
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Fractality of perimeter of dense polymer chains in 2D HENDRIK MEYER, Institut Charles Sadron, CNRS and Universite de Strasbourg, France, T. KREER, A. JOHNER, J. BASCHNAGEL, J.P. WITTMER — Self-avoiding polymers in two-dimensional melts are known to adopt compact and segregated configurations. Compactness does obviously not imply Gaussian chain statistics nor does segregation of chains impose disk-like shapes minimizing the average perimeter length of the chains. Using scaling arguments and molecular dynamics simulations with chain length up to 2048 we show that the chain perimeters are highly irregular and characterized by a fractal line dimension $5/4$. This result may be verified experimentally from the power-law scaling of the intrachain form factor in the intermediate wavevector regime in agreement with a generalized Porod law for a compact object of fractal border. [H. Meyer et al Phys. Rev. E 79 050802(R) (2009)]

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