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Dislocation structure and mobility in hcp ^{4}He MAURICE DE KONING, EDGAR JOSUÉ LANDINEZ BORDA, UNICAMP-Univ de Campinas, WEI CAI, Stanford University — We present results of Path-integral Monte Carlo simulations of the basal-plane screw dislocation in hcp ^{4} He at temperatures below 1K. First, our results show that, due to the extremely low stacking-fault energy, its core is widely extended, dissociating into a pair of Shockley partials separated by a ribbon of stacking-fault. Second, our findings suggest that the stress required to initiate dislocation motion is different from zero and of the order of 0.1 bar. Finally, we discuss the role of ^{3}He impurities.

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