

Abstract Submitted
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Scanning Tunneling Microscopy Study of CO diffusion on stepped Pt(111) surface¹ KEDONG WANG, XUDONG XIAO, Department of Physics, The Chinese University of Hong Kong — A time-dependent tunneling current mode based on scanning tunneling microscopy/spectroscopy (STM/STS) was used to study the tracer diffusion of CO molecules along steps and on terraces of Pt(111). The results show that the hopping rate of CO molecules along steps is about 10 times faster than that on terraces in the measured temperature range. The diffusion activation energies are 5.1 kcal/mol and 3.8 kcal/mol on terraces and along steps, respectively. The lower activation energy and faster hopping rate for CO molecules diffusing along steps provide direct evidence that steps provide fast diffusion channels for CO molecules on stepped Pt(111) surfaces.

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