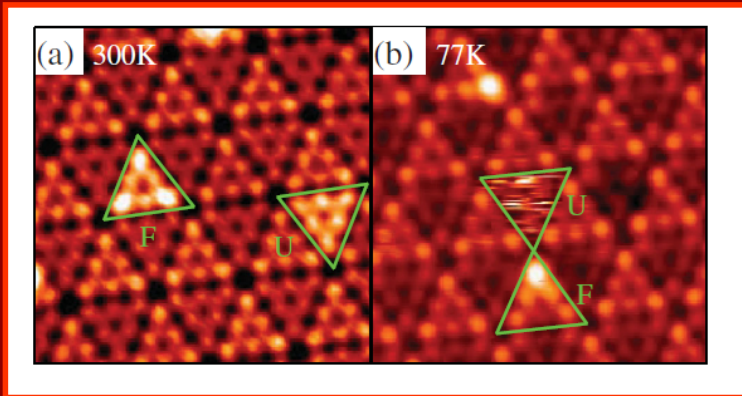
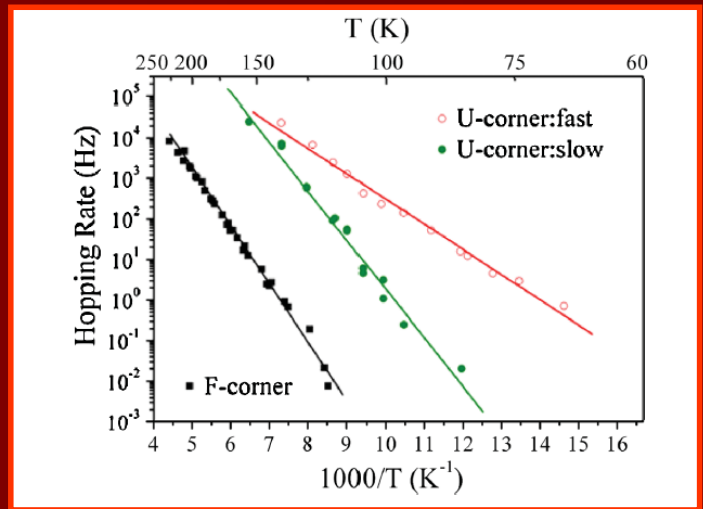
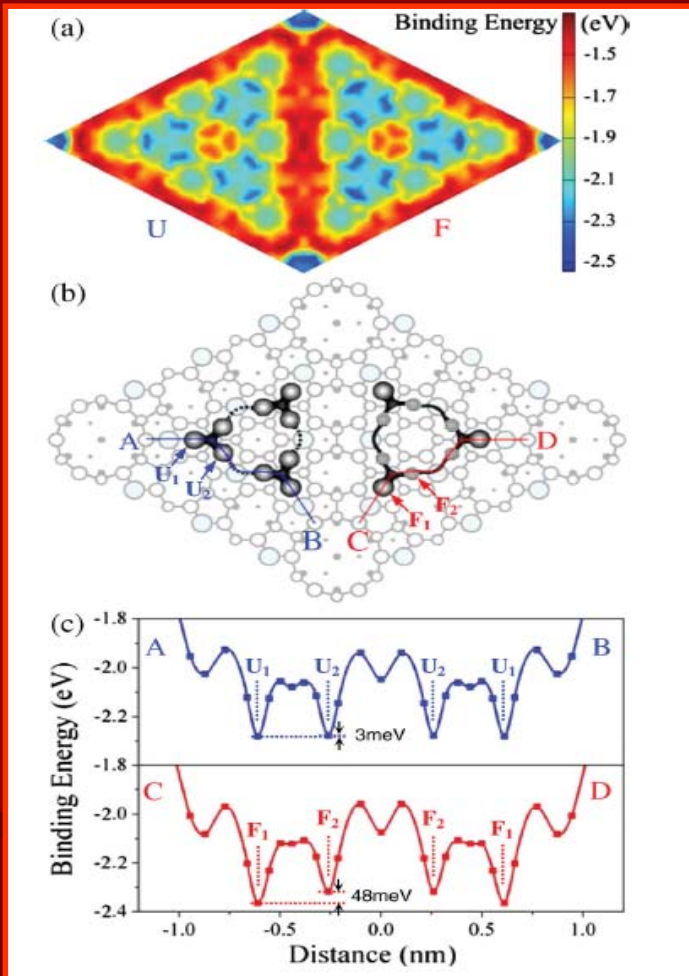
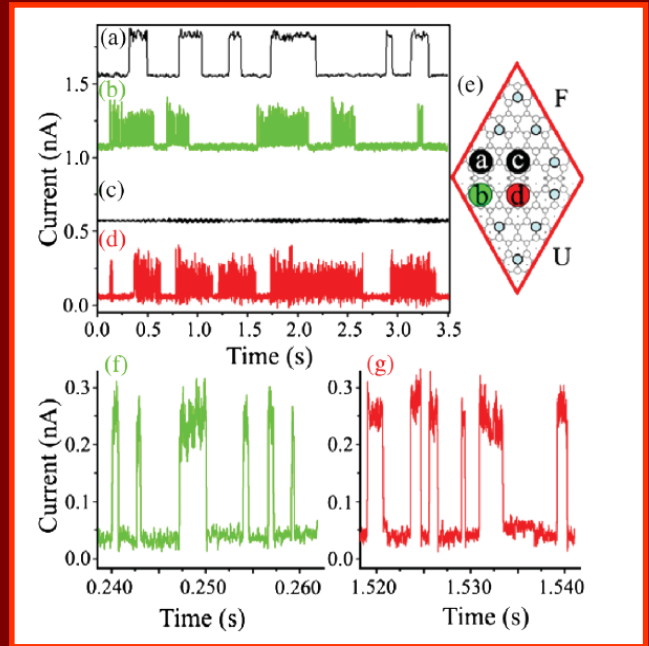


Intermixing of Intrabasin and Interbasin Diffusion of a Single Ag Atom on Si(111)-(7x7)

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STM images of single Ag atoms on Si(111)-(7x7) at 300K and at 77K. The FUHC and UHUC with Ag atoms are labeled, showing strongly asymmetric diffusion dynamics with a dual time scale.



With the help of PES constructed by first principles calculations (shown on the left), we can explain the dual-time scales in UHUC as an intermixing of intrabasin and interbasin diffusion. Our results show that this interesting dynamics is seen only for Ag atoms, and not on Pb, Na, H, O₂ and Si, placing Ag into a distinct class of adsorbates on Si(111)-(7x7).