

## Interactions of atomic hydrogen on Cu(111) and Pt(111) surfaces

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The interaction of atomic hydrogen on Cu(111) and Pt(111) is studied by Temperature Programmed Desorption (TPD) spectroscopy. The atomic hydrogen beam is prepared from dissociating hydrogen molecules through hot tungsten capillary tube heated by electron bombardment. Atom beam flux is calibrated from the TPD series of D adsorbed Si(100) sample assuming the initial sticking probability of Si(100) is unity. The D saturation coverage on Pt(111) is estimated 0.90ML, while it is only 0.36ML on Cu(111). The initial sticking probabilities of D atom on Pt(111) and Cu(111) are estimated 0.78 and 0.31, respectively. Furthermore, the cross sections of the abstraction reaction ( $\text{H}(\text{g}) + \text{D}(\text{ad}) \rightarrow \text{HD}(\text{g}) + \uparrow$ ) from Pt(111) and Cu(111) by direct ER plus primary hot atom mechanism are measured to be  $1.2\text{\AA}^2$  and  $4.7\text{\AA}^2$ , respectively. The large difference in chemical properties between Cu and Pt surfaces will be discussed in terms of the energy transfer in D atom collision with metal surfaces.