

Highly efficient electron beam induced enantioselective surface chemistry.

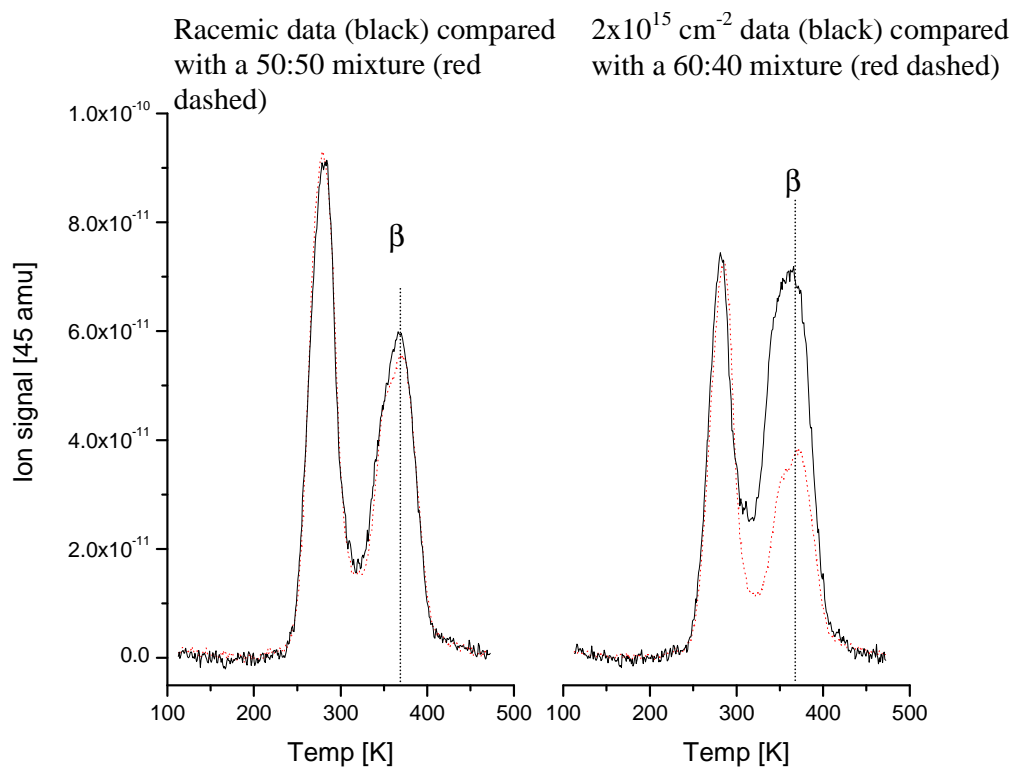
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### Gaussian fitting of TPD data

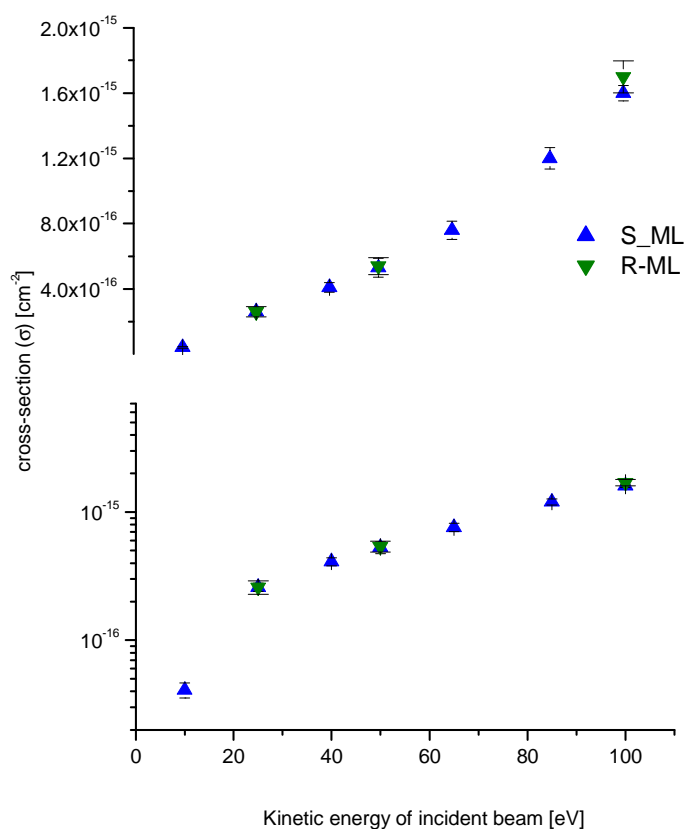
Component		Non-irradiated	$1 \times 10^{15} \text{ cm}^{-2}$	$2 \times 10^{15} \text{ cm}^{-2}$
S-ML	Area	$1.69 \times 10^{-9}$	$1.5 \times 10^{-9}$	$1.4 \times 10^{-9}$
	Width [K]	28	32	28
	Temperature [K]	287	287	287
R-MI	Area	$1.69 \times 10^{-9}$	$1.12 \times 10^{-9}$	$9.3 \times 10^{-10}$
	Width [K]	32	32	32
	Temperature [K]	275	275	275

In this table are listed the parameters of the Gaussians used to fit the kink desorption states in figure 3.



To provide independent verification of the fitting procedure we have compared experimentally TPD data, non-radiated and  $2 \times 10^{15} \text{ cm}^{-2}$ , with profiles derived from non-radiated TPD data for pure S- and R-ML. The experimentally racemic data is in excellent agreement with a 50:50 mixture of pure non-irradiated S- and R-ML. The kink state of the  $2 \times 10^{15} \text{ cm}^{-2}$  is in excellent agreement with the kink state of a 60:40 mixture (scaled to compensate for the reduced absolute coverage) of pure non-irradiated S- and R-ML, providing verification of our Gaussian fitting procedure. The  $\beta$  state observed in the  $2 \times 10^{15} \text{ cm}^{-2}$  is larger than that obtained from the mixed non-irradiated profile because of the electron stimulate O-H cleavage of ML, which results in greater amounts of recombinative desorption than that observed thermally.

## Evidence for low energy electron attachment



Displayed is the dependence of the electron-stimulated desorption of S- and R-ML on Cu(111) upon the kinetic energy of the incident electron beam (upper panel linear scale lower panel logarithmic scale). The data is consistent with a mechanism involving attachment of low energy electron attachment, in particular the measurable cross-section observed for 10 eV beams.