Atomic and molecular collisions with surfaces: comparisons of Ar and N2 scattering from Ru(0001)

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Erratum

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W W Hayes, Hailemariam Ambaye and J R Manson
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Due to an error in the calculations, figures 1–3 are incorrect. The corrected figures are shown below. The discussion of figure 1 is unchanged. However, our disussion of figure 2 with respect to the effects of convolution with the energy width of the experimental incident beam are no longer valid. The calculated points in figure 2 now agree reasonably well with the Gaussian approximation of equation (7) except for the point at the highest surface temperature where the Gaussian approximation begins to break down. In the discussion of figure 3 the considerations of the shoulder feature for $\theta_i = 40^\circ$ at $\theta_f \approx 60^\circ$ no longer apply. The corrections do not change the conclusions of the paper regarding evidence for an effective mass larger than that of a single Ru atom and all conclusions drawn from this finding remain valid.

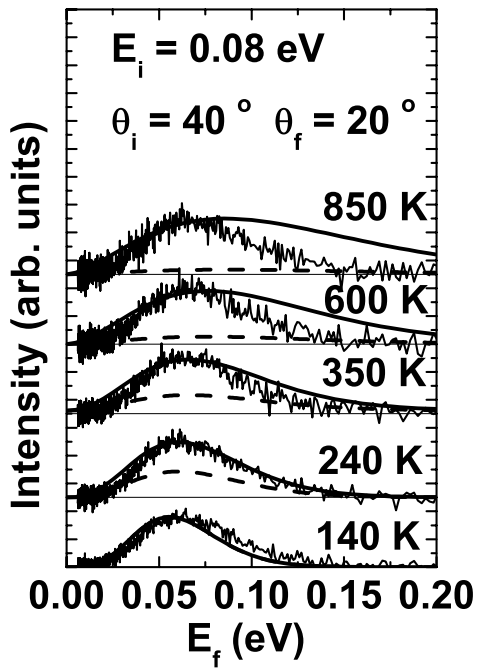

Figure 1. Energy resolved spectra of Ar scattered from Ru(0001) at temperatures ranging from 140 to 850 K as marked. The incident energy is $E_i = 0.08$ eV, the incident angle is $\theta_i = 40^\circ$, and the final angle is $\theta_f = 20^\circ$. The theoretical calculations, normalized to the data at each temperature, are shown as smooth solid curves and the calculated intensities relative to that at $T_S = 140$ K are shown as dashed curves.

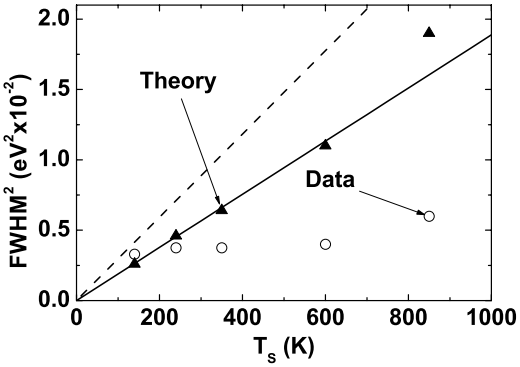

Figure 2. The squared FWHM plotted as a function of surface temperature T_S for the same data as shown in figure 1. Experimental points are shown as circles and calculations are shown as squares. The solid line is the Gaussian approximation to the present theory, and the dashed line is the result of the trajectory approximation.

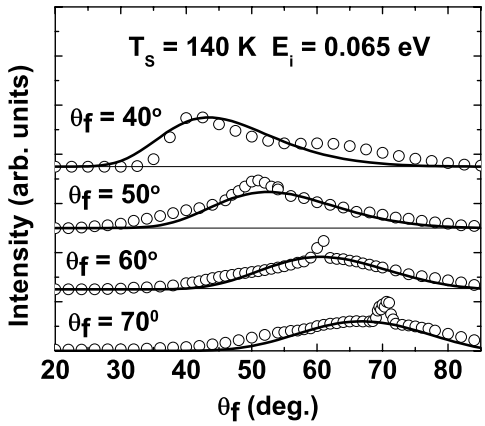

Figure 3. Angular distributions for Ar/Ru(0001)-(1×1)H in the $\langle 11\bar{2}0 \rangle$ direction with $E_i = 0.065$ eV, $T_S = 140$ K and four different incident angles ranging from 40° to 70° as marked. The symbols are experimental data and the solid curves are calculations that have been renormalized to match the experimental data in the vicinity of the maximum in the background.

