

Quadruple-period Ordering along [110] in a GaAs_{0.87}Sb_{0.13} Alloy on (001) GaAs

Z. Zhong, J. Li (U. Of Houston/ Chinese Academy of Science, China), P.C. Chow, T.D. Golding, S.C. Moss (U. of Houston), J. Kulik, A.G. Norman, A. Mascarenhas (National Renewable Energy Lab), and J. Bai (ORNL)

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RD measurement on GaAs_{0.87}Sb_{0.13}, GaAs_{0.90}Sb_{0.10}, and GaAs_{0.92}Sb_{0.08} were carried out. The line profile along [110] and the map image of plane (-110) in reciprocal space demonstrate that the quadruple-period ordering occurs in all these three samples. The calculation of the scattering intensity by kinematic theory, with and without atom displacements, agrees well with the experimental data.

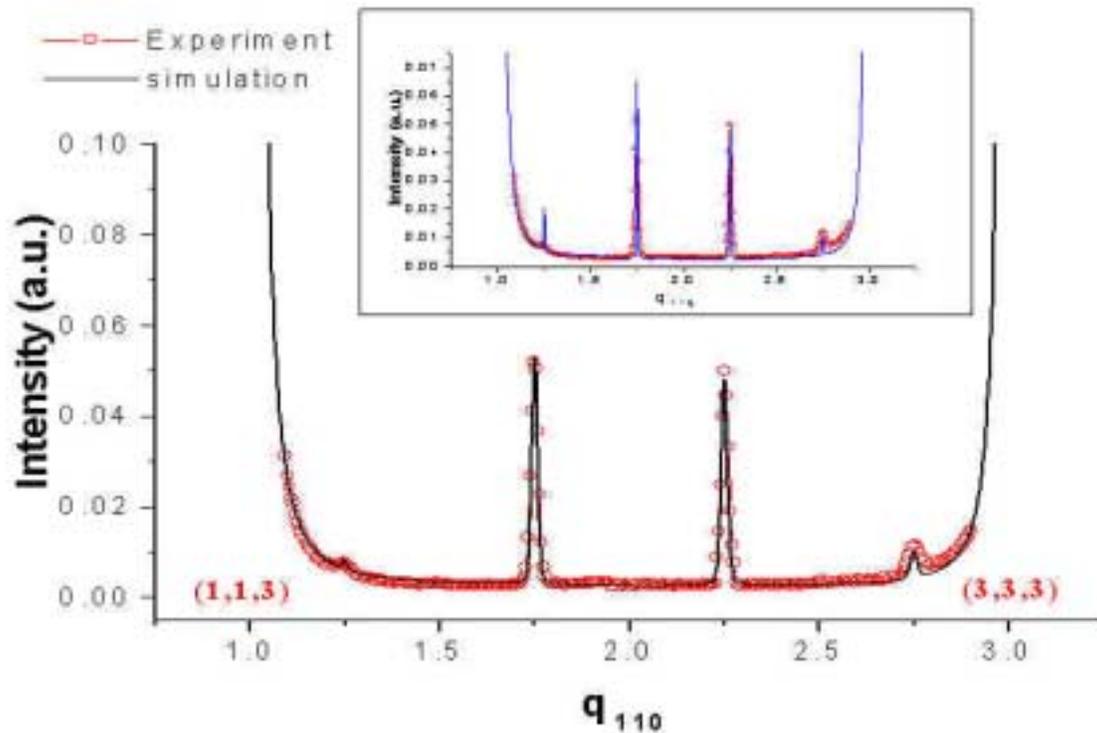


Figure 1. XRD one-dimensional scan in reciprocal space from (1,1,3) to (3,3,3). The red open circles are experimental data; the black line (blue line in inset) is simulations. The inset shows the simulation without displacements in which the axis labels are the same as on the main plots.