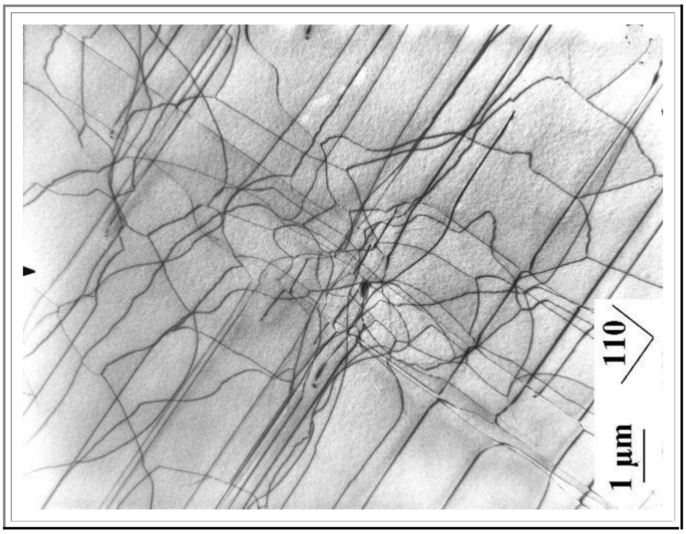
Misfit Dislocations in the Interface between Heavily and Normally Doped Silicon

Illustration

- The **TEM** micrograph shows a loose network of dislocations between "regular" and heavily **B**-doped Silicon. The expected square network has not yet fully developed. Many dislocations are "on their way" from the surface to their proper place in the interface.
    - The geometry is also not too well defined, because there is no abrupt change of lattice constants as in the case of phase boundaries between chemically different phases. The lattice constant changes continuously following the **B**-concentration which obeys some diffusion profile.



- On occasions, a stacking fault network instead of a dislocation network is observed as shown below. The reasons for this unclear. Stacking faults of this gigantic size should be totally unstable and would be expected to unfault.