Dislocation Network in a Si - $NiSi_2$ Interface

Illustration

- This overview picture shows the "*interphase*" structure of the **$NiSi_2$ - Si** interface.
  - In the bright patches we have a direct epitaxial relationship, the network consists of ***a*/2<110>** dislocations. split into partial dislocations, with extended and constricted dislocation nodes. This is exactly as we have seen it before in the small angle grain boundary in Si, except that the dislocations now are *edge* dislocations and not *screw* dislocations!
  - In the darker areas the **$NiSi_2$** layer is *twinned* with respect to the substrate. The dislocation network is composed of the ***a*/6<112>** dislocation of the **DSC** lattice belonging to a **$\Sigma = 3$** relation. The inset shows this network at higher magnification. This, again, is quite similar to the splitting of the small angle grain boundary on **Si** into a microtwin plus dislocation network.