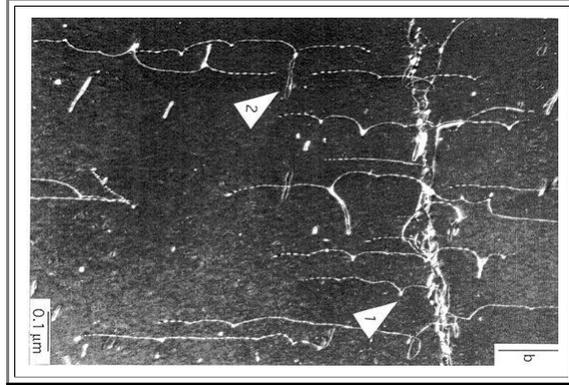


Dislocations in TiAl

Illustration

TiAl alloys are promising candidates for high strength and high temperature materials. A major concern for all structural materials are all mechanisms of plastic deformation, including creep and fatigue, especially at high temperatures.

- In the following picture dislocations in a **TiAl** alloy are shown. In contrast to "normal" pictures, they are heavily bowed out. This is special, because **TEM** specimens are no longer under the applied stress used while making mechanical tests and thus are expected to snap back to a rather straight line in the TEM specimen.
- In this case, **debris** from prior plastic deformation (visible as whitish specks), precipitates and possibly point defects keep the dislocations firmly anchored. At several point (e.g. at "1" and "2"), the dislocation can not overcome an obstacle and pulls out long dipoles.



- This picture is from D. **Appel** from the research center **GKSS** in Geesthacht.