3.2 Double Ribbons and Stacking Fault Energies in Si

3.2.1 Background

From the sintered grain boundary work, specimen with a small-angle twist boundary on {111} resulted; they have been dealt with in detail before. Interruptions of the network by embedded amorphous SiO_2 particles necessitated an adoption of the network at the crystalline – amorphous interface and it was my colleague and friend Barry Carter who recognized some of these structures as so-called "**double ribbons**" and also knew that these structures could be used to determine the stacking fault energy of intrinsic and extrinsic **stacking fault**s in silicon. That was still a hot issue in 1978 when we did this work. What you need is precision in deterring distances and this is not easy because the nominal magnification of the electron microscope is not a very precise number. But I had become e an early HRTEM aficionado and taking direct lattice pictures with their built-in scale allowed us to do rather good work. And a lot of work it was.

- I would not have included this work here (it's kind of special and technical) but as it happens (and as I found out by accident) it is one of my more popular papers with **100** citations (Nov. 2022)
  The topic is "Direct TEM Determination of Intrinsic and Extrinsic Stacking-Fault Energies"; see publication No. 18 in the publications list. 100 citations are lot for this field. That's probably because it was mostly written by Barry Carter who knew a lot more about the topic than I by then (and now). It may be a bit hard to see why this article caused some minor excitement among the (probably no more than 50) cognoscenti then. But in 1979 "dissociated" dislocations were still a hot topic, in particular in semiconductors. Read the reproduction of the article to find out more.
  I give you some of the original pictures here.

3.2.2 Publications

18 FÖLL, H., CARTER, C.B.: Direct TEM determination of intrinsic and extrinsic stacking fault energies in Si. Phil. Mag. 40 (1979) 497
(100 citations)
This paper quite amazed me with its large number of citations

3.2.3 Pictures

There aren't all that many pictures and I even don not have all of them anymore. Here they are:

Double Ribbon Pictures