CAPTIONS OF THE FIGURES

Fig. 1  
Projection of Si and C atoms in SiC.  
a  
Elementary Si-C tetrahedron.  
b  
Projection of one tetrahedral layer.  
c  
Projection of two adjacent tetrahedral layers of the wurtzite configuration.  
d  
Projection of two adjacent tetrahedral layers of the zincblende configuration.  
e  
Projection of the different positions of the atoms. The axes-system and the base of the unit cell are indicated.

Fig. 2a  
A model of the structure of β SiC.

Fig. 2b  
Ott's tetrahedral model of 6H α SiC. White balls represent Si atoms and black ones those of C.

Fig. 3  
Edward's vacuum coating unit 12 EA

Fig. 4  
Vickers projection microscope.

Fig. 5  
Olympus universal microscope (PMF).

Fig. 6  
Carl Zeiss Jena Electronmicroscope EF-4.

Fig. 7  
Multiple reflections between two glass plates.

Fig. 8  
Optical arrangement for the Fizeau fringes in the reflected system.

Fig. 9  
Schematic representation of fringe shift at a step.

Fig. 10  
Optical arrangement for light profile microscopy.

Fig. 11  
The Vectors S and P representing the transmitted light by the surrounding medium and the particle.

Fig. 12  
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Fig. 14  Formation of a spiral from a screw dislocation.

Fig. 15  Growth front exhibiting grain-like structures.

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Fig. 16b  Phase contrast micrograph showing the corresponding region. Only the highest one is visible.

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Figs. 18a and b  Spiral II and the Fizeau fringes over it.

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Figs. 19a and b  Spiral III and the Fizeau fringes over it.

Fig. 19c  Electronmicrograph of the origin. Note a component of the opposite sense.

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Fig. 20c  Electronmicrograph of a portion of the spiral arm.

Fig. 21  Origin of a spiral. Note the vortex-like appearance of the centre and the secondary growth over the arm oriented through 30°.

Fig. 22  Origin of another spiral.

Fig. 23a  A (0001) face showing a growth hillock.

Fig. 23b  Top of the hillock at a higher magnification.
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The complementary cleavage in oblique illumination.

'Wallner' lines on a \{10\overline{1}0\} and a \{0001\} fractures respectively.

Matched fracture surfaces of \{11\overline{2}0\} and \{0001\}.

Etch patterns produced by etching in \text{Na}_2\text{CO}_3 on matched A and B faces.

Etch patterns produced by \text{Na}_2\text{CO}_3 illustrating the characteristic differences in etching due to polarity.

Multiple beam interferograms on the faces in Fig. 58.

Correspondence of etch pits on the A and B faces, produced by the mixture.

The result of successive etching of the regions in Fig. 60.

The face in Fig. 61a after additional etching. (The new point bottomed pits in the flat bottoms are due to dislocation cross slip).

Correspondence of pits marking two kinds of dislocations. (Pits A (type I) mark edge dislocations and pits B (type II) screw dislocations).

Illustration of some deviation from perfect matching due to the bending of dislocations at the cleavage plane.

Schematic diagram showing the two conceivable types of cleavages of SiC along \{0001\} plane; cleavage along the dashed line is only probable.

General etch patterns produced on a habit \{0001\} face by heating the crystals in the carbon arc.

Correspondence of pits on a pair of matched \{0001\} cleavages by heating.
Fig. 68a The etch pits on a (0001) face produced by heating.

Fig. 68b Correspondence of pits on the complementary (0001) cleavage by etching in Na₂O₂.

Fig. 69a Natural etch pits observed on a (0001) face.

Fig. 69b The same face after laboratory etching in Na₂O₂.

Figs. 70a and b Result of NaOH etching on the A and B faces at 500°C. B face is not affected at all.

Figs. 71a and b Result of NaOH etching on the A and B faces at 700°C. The B face has been very vigorously etched.

Figs. 72a Hexagonal pits with sides parallel to <1010> directions on an A face when etched in NaOH : KNO₃ at 570 - 590°C.

Fig. 72b The same region after etching in Na₂O₂. The sides of the pits have oriented through 30° so that they are now in <1120> directions.

Fig. 73 Triangular hillocks on the (0001) face produced by NaOH + KNO₃ at 630°C, with light profile running over them.

Figs. 74a and b Circular hillocks with hexagonal terraces, after 10 mts. and 20 mts. etching in the mixture of NaOH and KNO₃.

Fig. 75a Etch hillocks of assorted sizes.

Fig. 75b The same region after etching in NaOH.

Fig. 76 Electronmicrograph showing the apex and crystallographically oriented terraces of a hillock.

Figs. 77a and b Correspondence of etch pits with etch hillocks. Fig. 77a shows the face after the NaOH etching of the face in Fig. 77b which developed etch hillocks.
Correspondence of etch pits and etch hillocks on the opposite sides of a thin flake. Fig. 78a shows the pits on the A face and Fig. 78b, the hillocks on the opposite B face.

Nucleation of hillocks at screw dislocations. Fig. 79b shows the face in Fig. 79a after etching.

Etch pits produced on a habit prism plane in NaOH + KNO₃.

Pits of various elongations along the c-axis, on the planes of prism zone depending on h.

Etch pits on a pyramidal plane.

Correspondence of pits on matched prism cleavages.

Correspondence of pits on the matched 2nd order prism plane.

Pile-ups on a (0001) cleavage.

Pile-ups of opposite sign on a (0001) habit face.

Polygon-walls on a (0001) habit face.

Polygon-walls on a [0001] cleavage.

Complete polygonisation of dislocation on a naturally etched crystal.

Glide bands on a habit prism plane.

Glide bands on a matched fracture of prism planes.

Glide bands in the three systems on a basal plane. Figure 93a an arm at a higher magnification.

Prismatic rosette on a matched pair of basal cleavage.
Fig. 95 Helicoid on a basal cleavage.

Fig. 96 A grain boundary on a prism plane.

Fig. 97 Correspondence of a row of grain boundary on matched basal cleavages.

Figs. 98a and b Etched traces on a \{0001\} face revealing lamellar growth of SiC. Figure 98b is higher magnification of some region of the crystal.

Fig. 99 The intersecting boundary of two such traces.

Fig. 100 Traces arising from three edges of a crystal.

Fig. 101 Pits of trigonal symmetry on a SiC.