

Supplementary information for paper “Unusual type of extended defects in synthetic High Pressure – High Temperature diamonds” by A.A. Shiryaev et al.

High magnification optical microscopy images (transmitted light) of the cone-like extended defects in the Ib diamond.

FIGURE S1. Various types of the strands' branching.

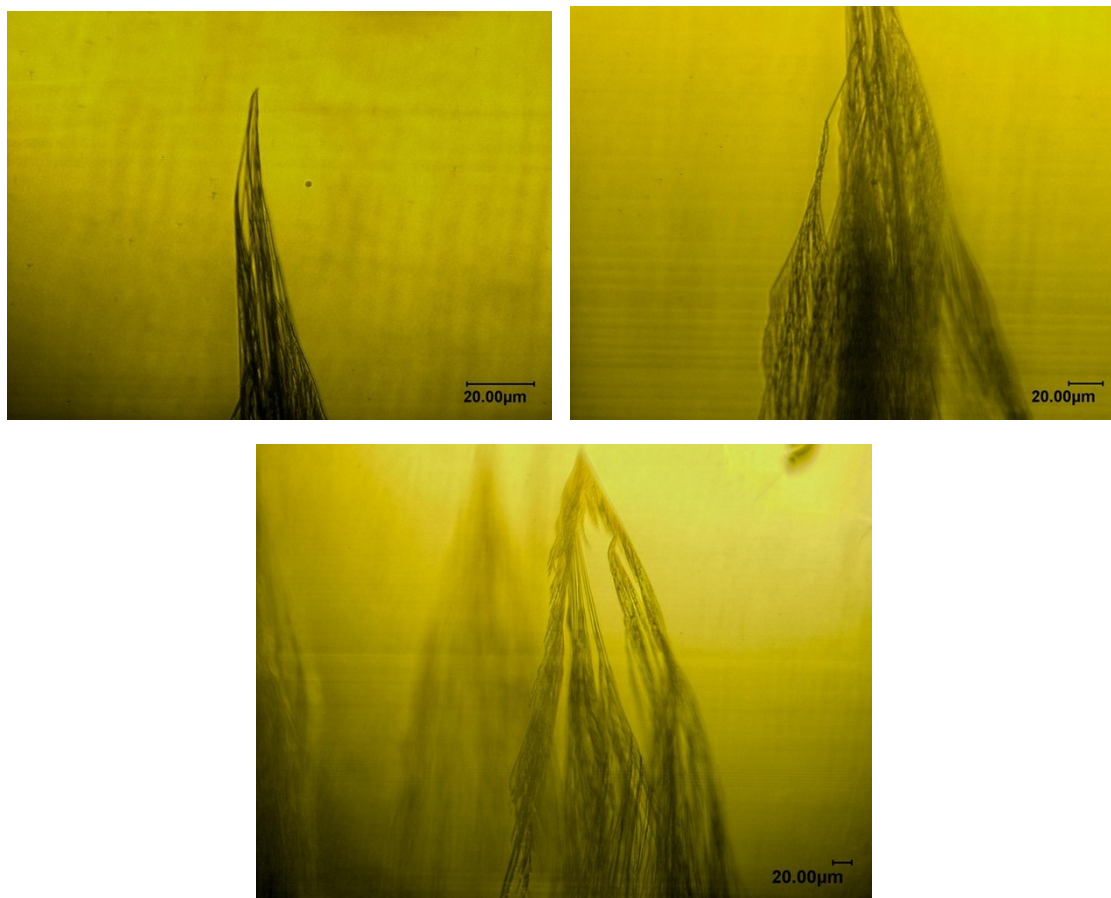


FIGURE S2. Cone defects may abruptly terminate at fine internal zoning in the crystal. This is observed for the cones of widely different sizes.

One can clearly observe tiny interruptions in the strands.

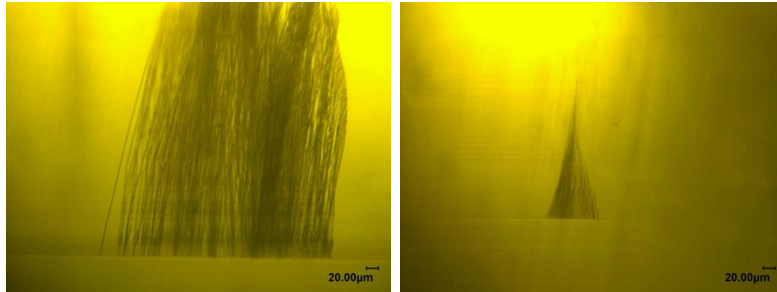


FIGURE S3. At some places parts of the cone penetrate through the zoning. See text for details.

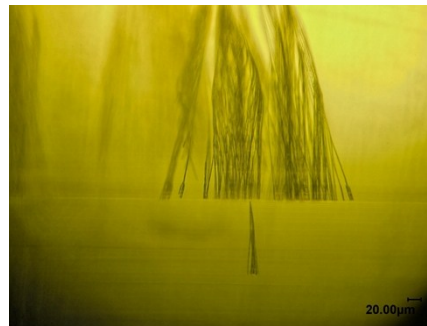


FIGURE S4. Image in a crossed nicols of a cone-like defect same as Fig. 1G of the main text. Absence of birefringence around the cone indicate almost complete absence of strain.

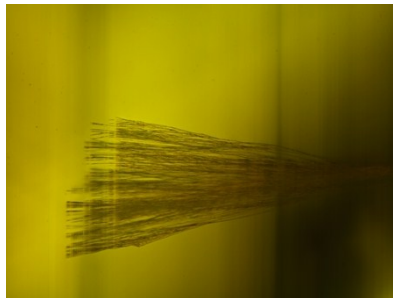
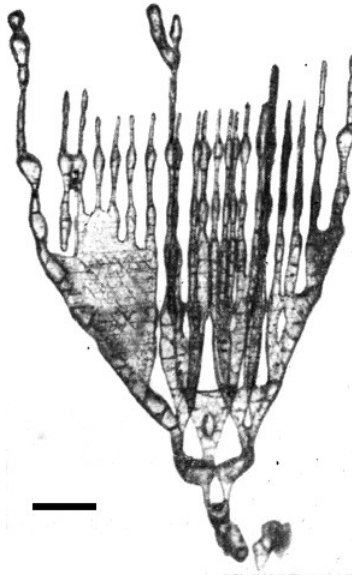
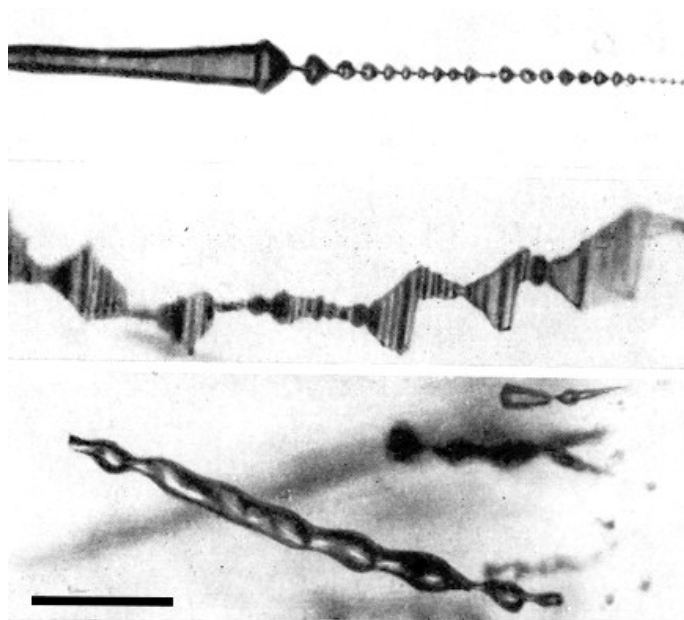


FIGURE S5. Photographs of inclusions with shapes resembling the tree-like defects. Adapted from: V.A. Kalyuzhnyy, Y.V. Lyakhov, Inclusions of cassiterite and fluorite in crystals from pegmatites of Volhynia. Doklady of the Academy of sciences of the U.S.S.R., Earth Science Sections, Vol 143(1-6) 1964 100-102 (Translated from: Doklady Acad. Sci USSR, 1962, 143(5), 1182–1185.) (Ref. 28 in the manuscript).



Fluorite (CaF_2) inclusions in quartz. Scale bar – 200 microns.



Cassiterite (SnO_2) inclusions in topaz. Scale bar – 100 microns.