

Figure 1: Polished (100) diamond surface post-treatment with H plasma, showing crystallographic etching of defects induced during traditional polishing processes.

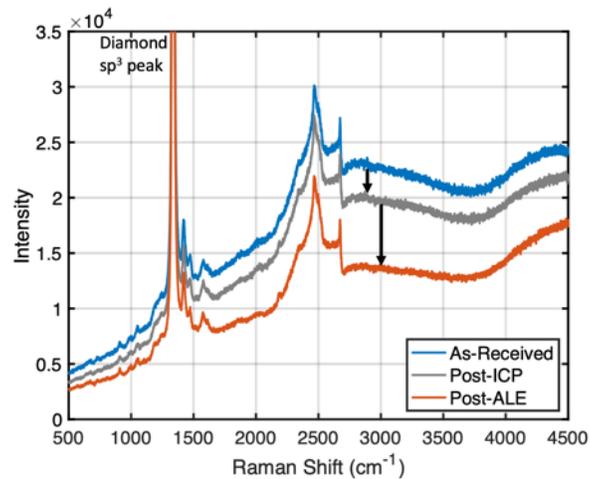


Figure 2: Raman spectroscopy of polished single-crystal diamond surface, showing reduction of sp^2 signal from polishing to ICP etching to ALE preparation, as an indicator of near-surface lattice damage.

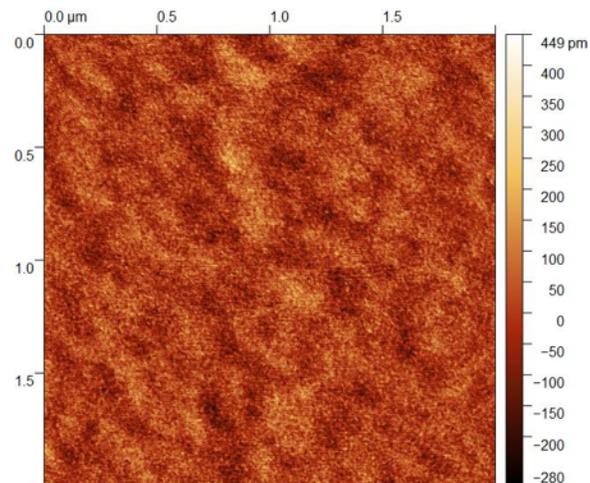


Figure 3: AFM image of post-ALE diamond surface, showing $R_a = 0.058\text{nm}$ over a $2 \times 2 \mu\text{m}$ scan area.