

Supporting Information

Enhanced out of plane electrical conductivity in polymer composites induced by CO₂ laser irradiation of carbon fibers

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S1. SEM micrographs of PCF and TCF fibers. TCF denotes Toray CFs (T700SC), while PCF denotes the Pyrofil fibers (TR50S). bTCF and bPCF represent control bare non-exposed CFs.

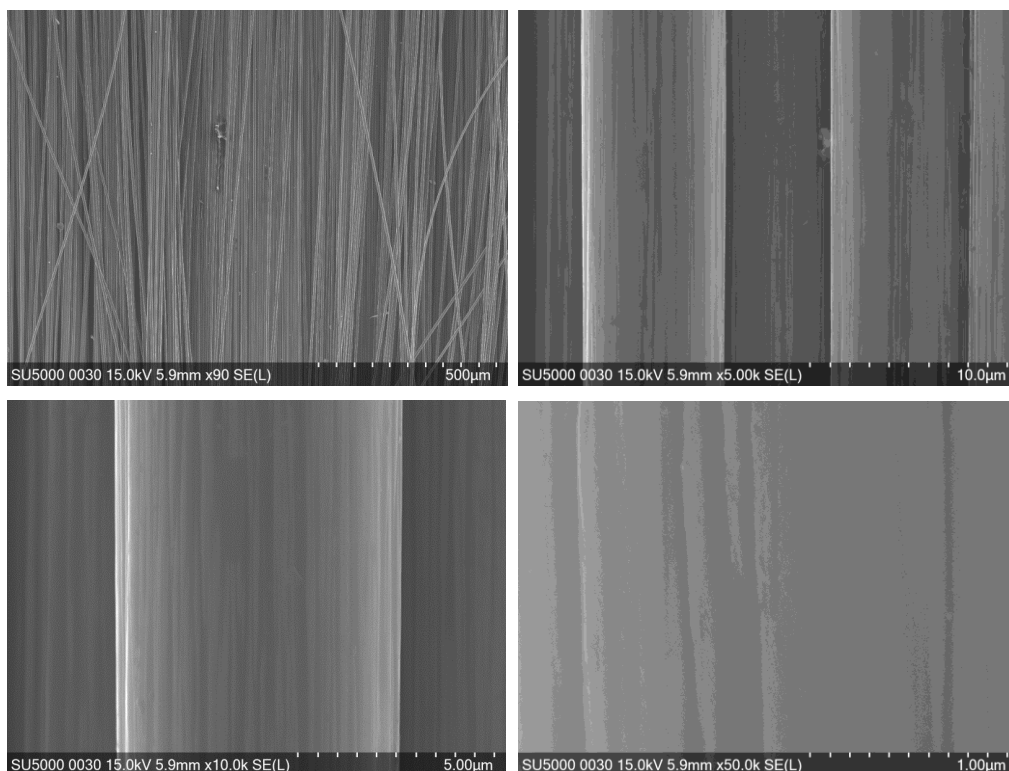


Figure S1. PCF sample irradiated at 2.5 W (25 J/cm^2).

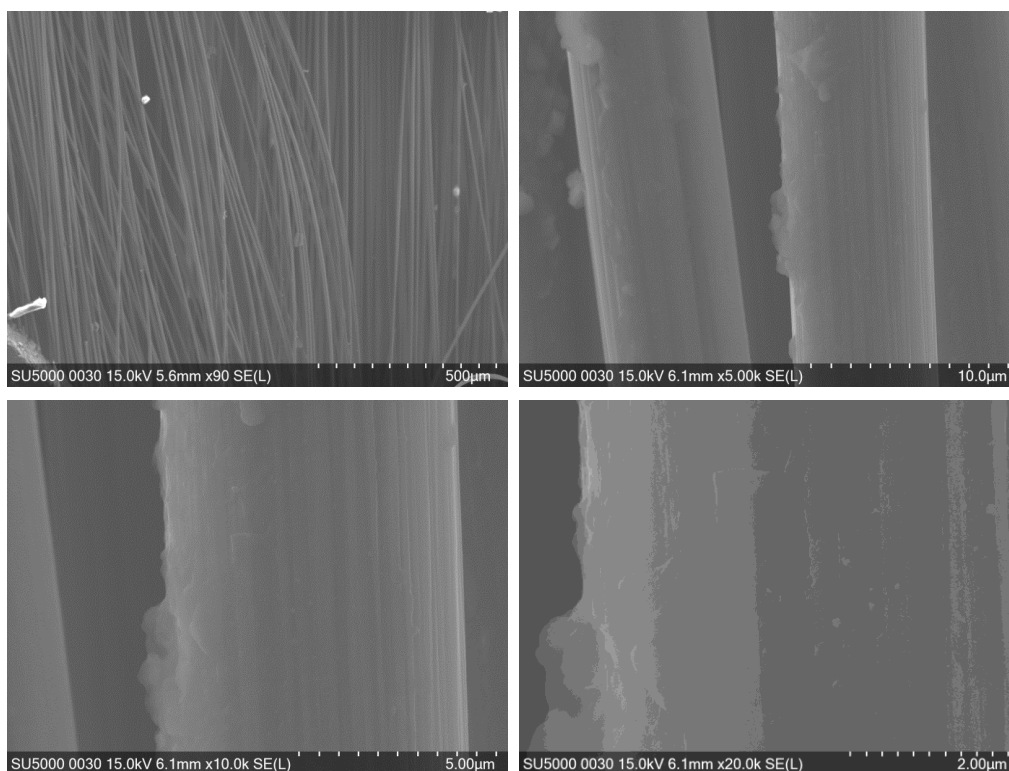


Figure S2. PCF sample irradiated at 3.75 W (37 J/cm^2).

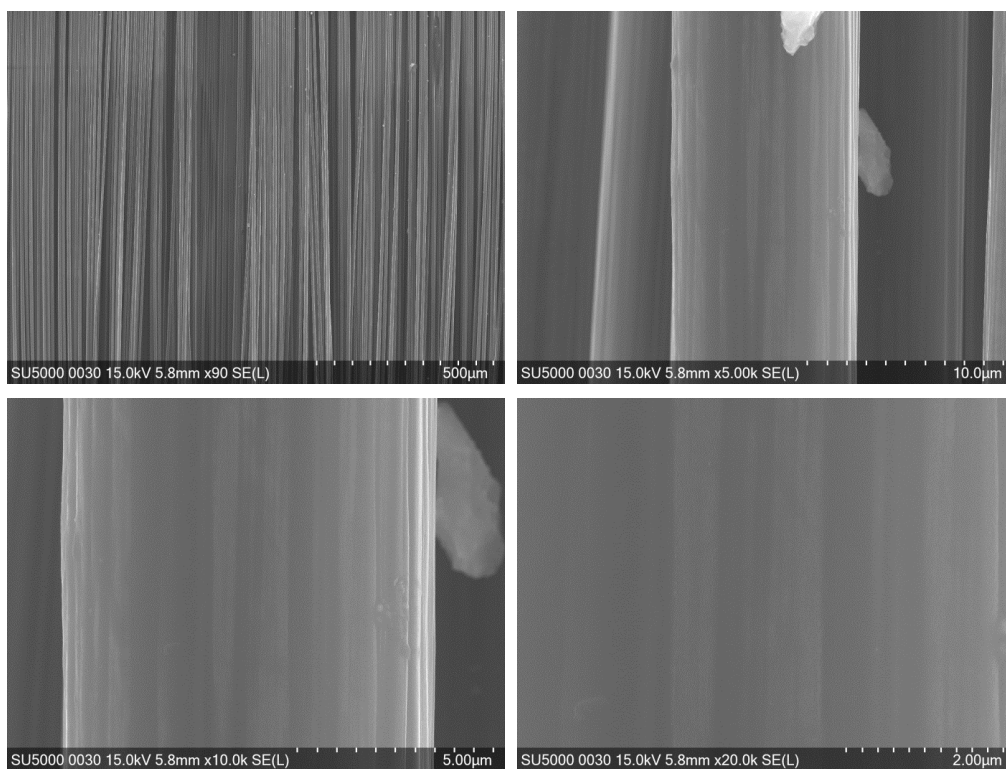


Figure S3. PCF sample irradiated at 4 W (39 J/cm^2).

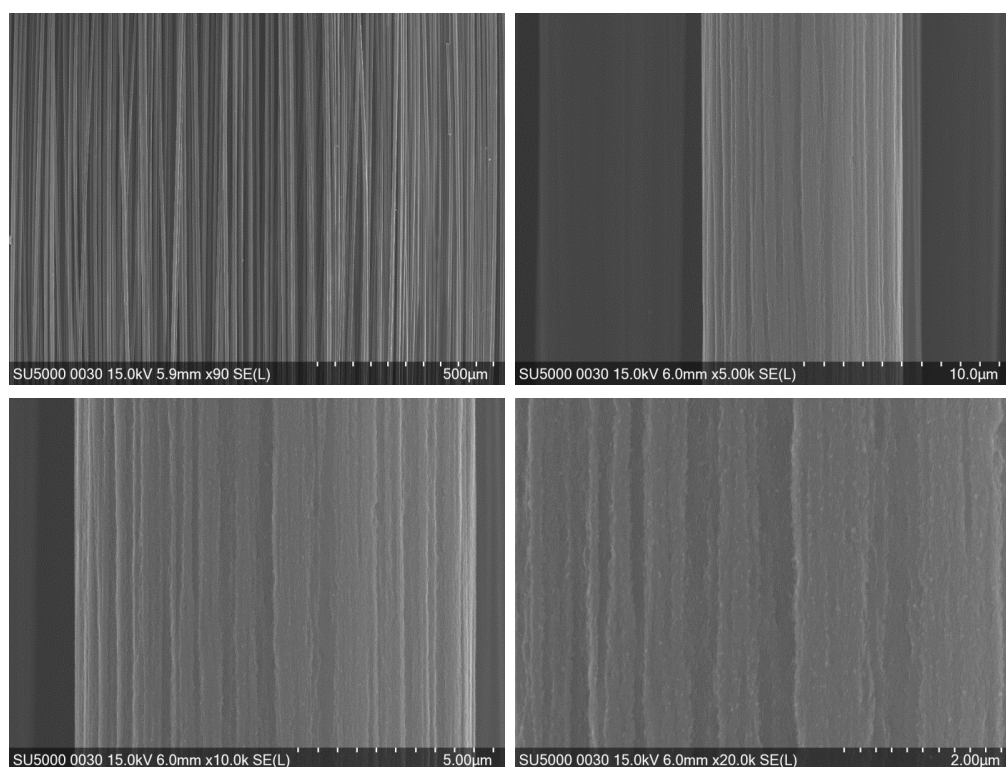


Figure S4. PCF sample irradiated at 4.25 W (42 J/cm^2).

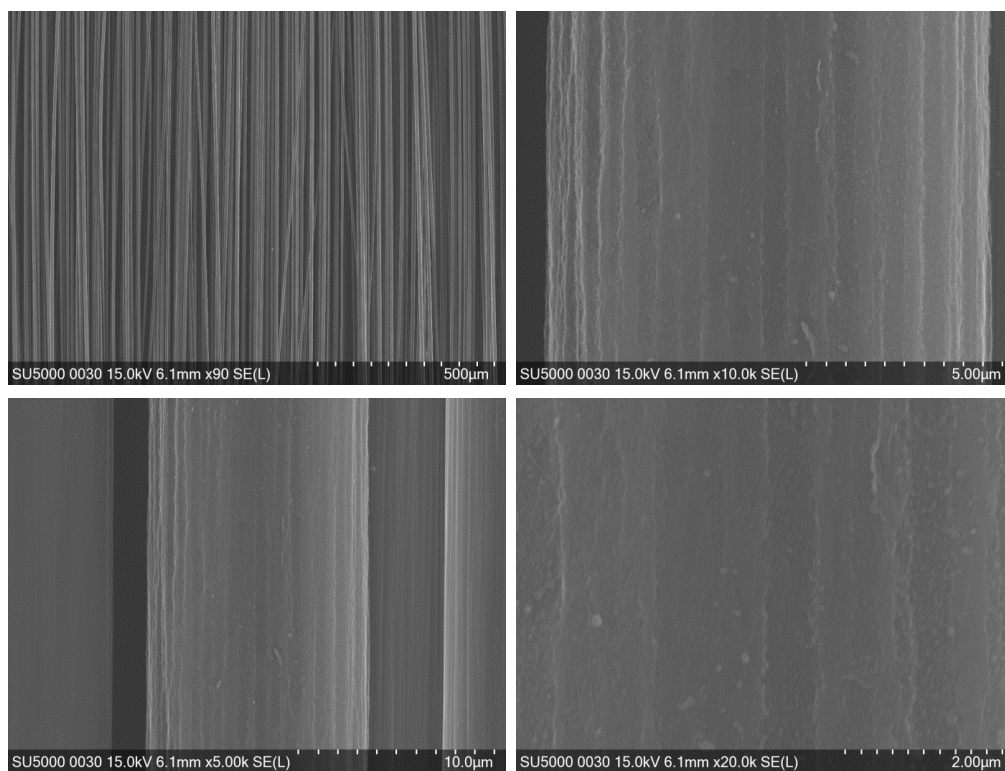


Figure S5. PCF sample irradiated at 4.5 W (44 J/cm²).

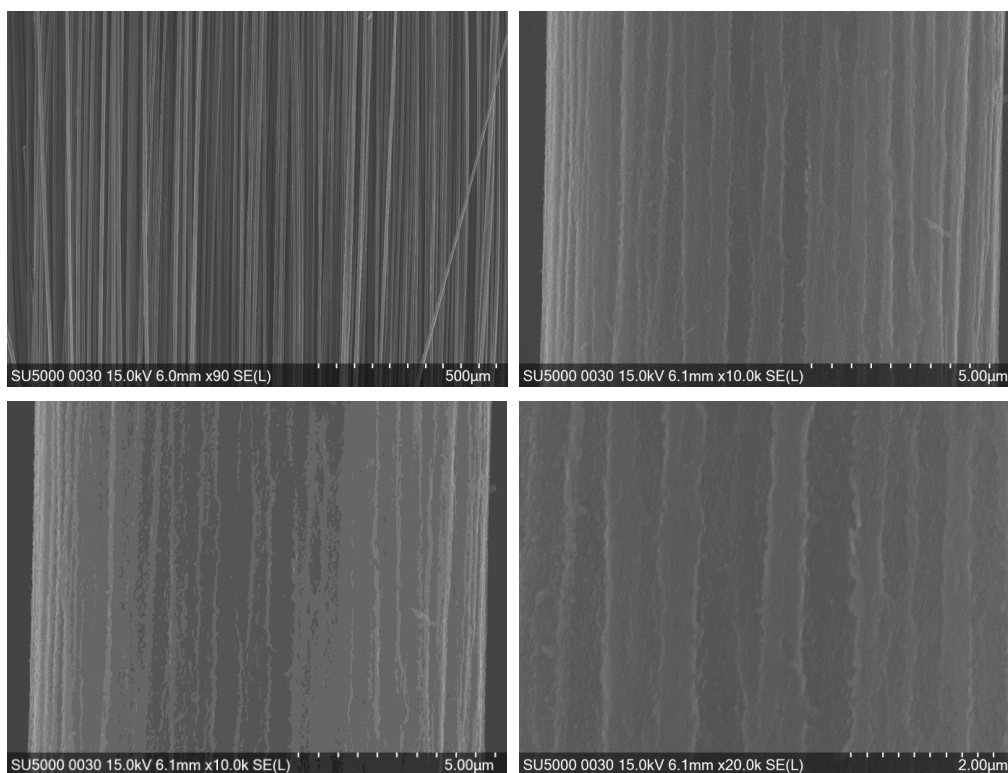


Figure S6. PCF sample irradiated at 4.75 W (47 J/cm²).

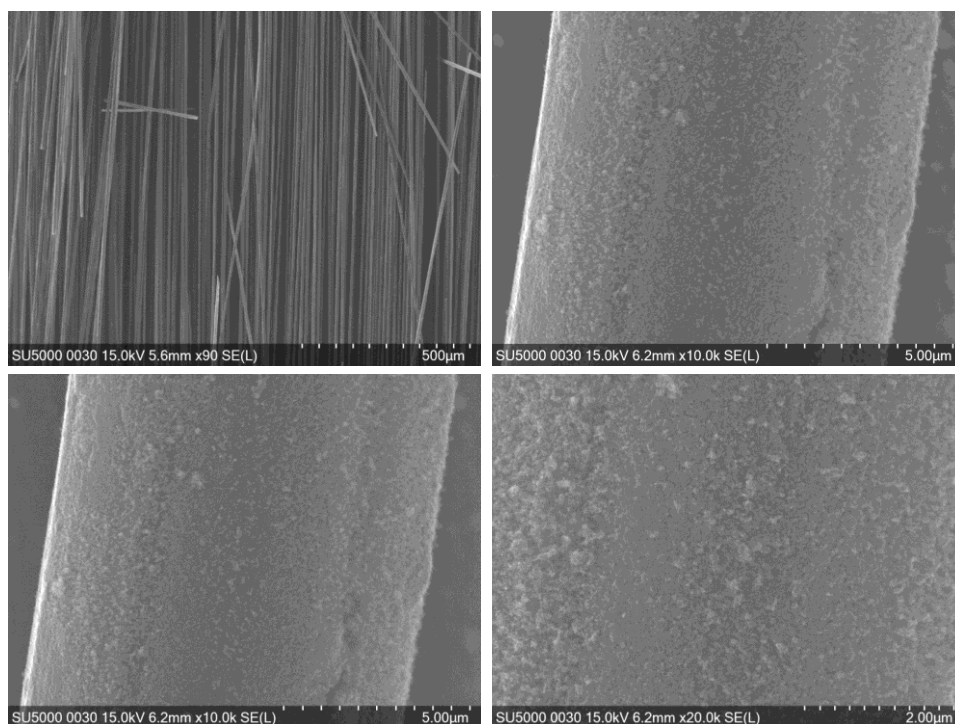


Figure S7. PCF sample irradiated at 5 W (49 J/cm^{-2}).

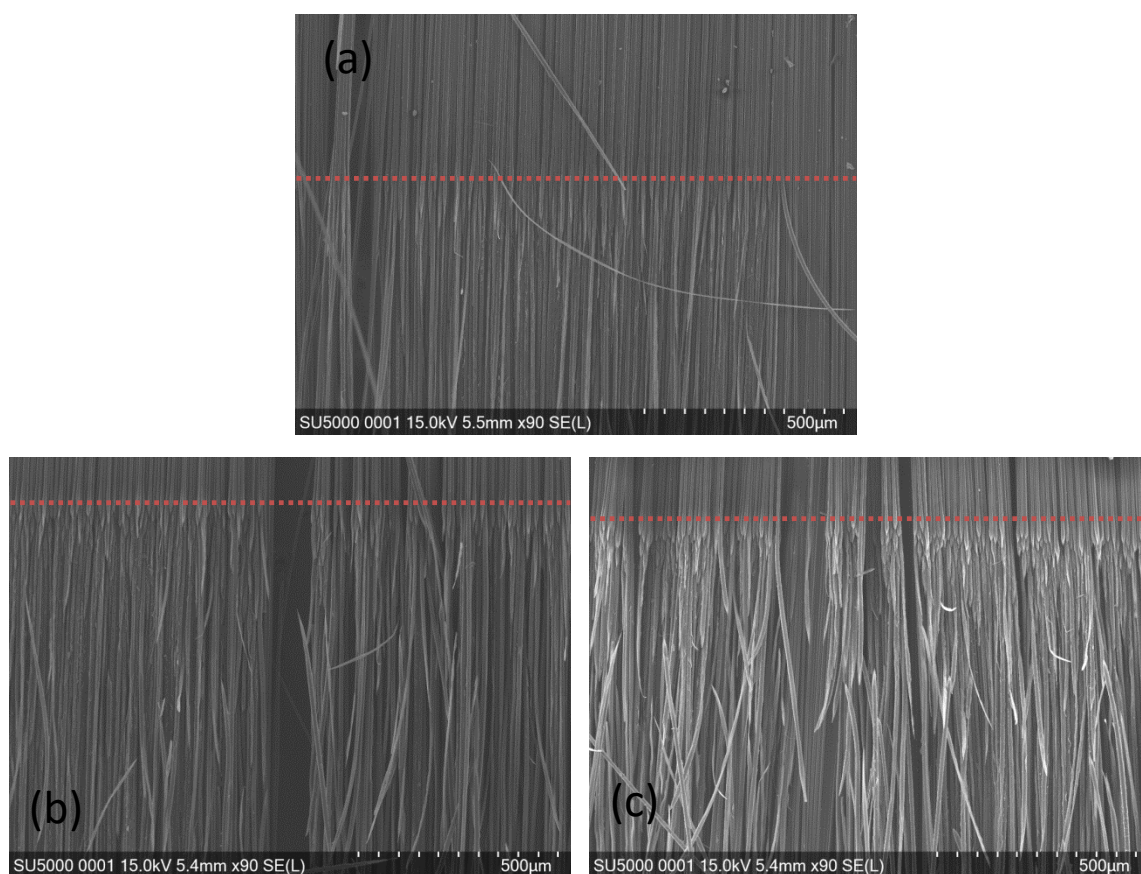


Figure S8. Area of the irradiation for TCF representative samples. (a) TCF_{4.75 W} (47 J/cm^{-2}), (b) TCF_{7.5 W} (74 J/cm^{-2}), (c) TCF_{10 W} (99 J/cm^{-2}).

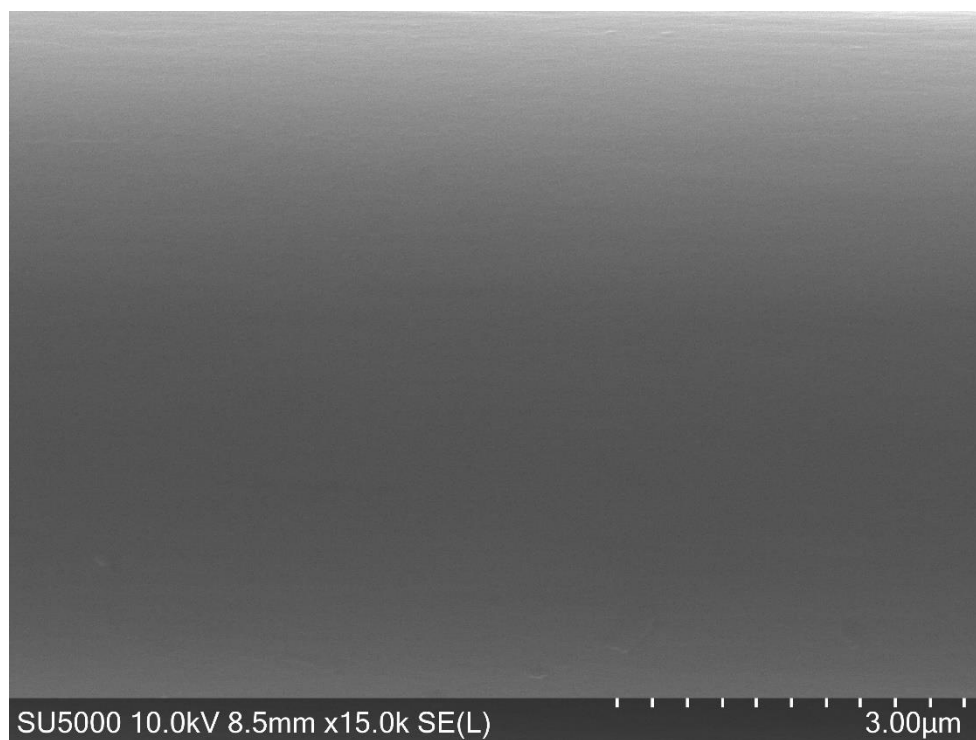


Figure S9. bTCF sample.

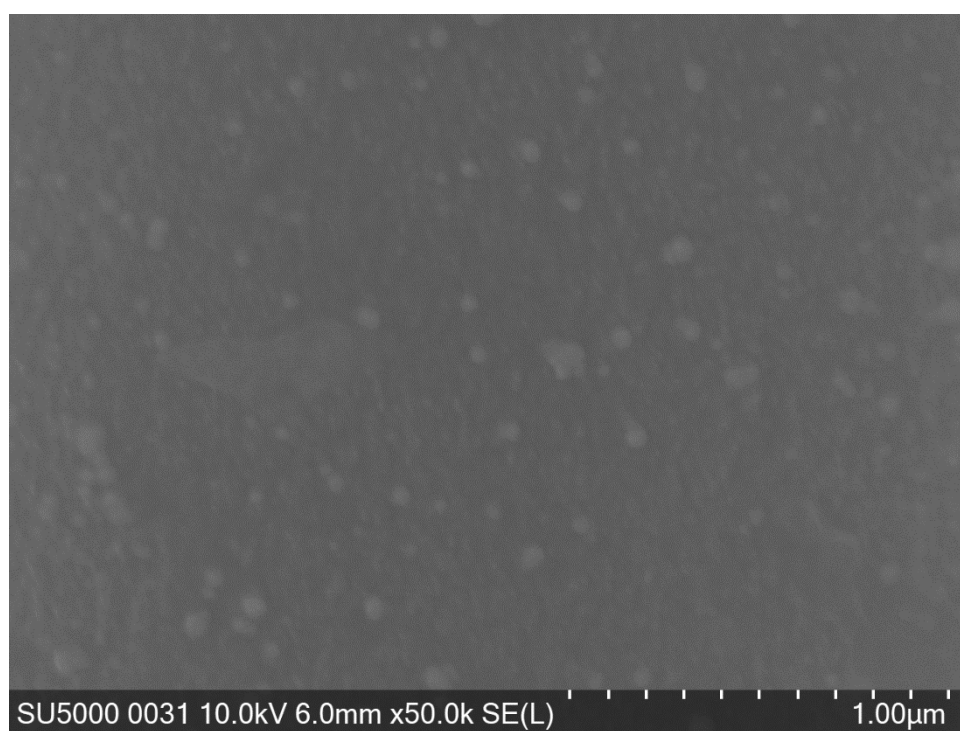


Figure S10. TCF sample irradiated at 3.75 W (37 J/cm²).

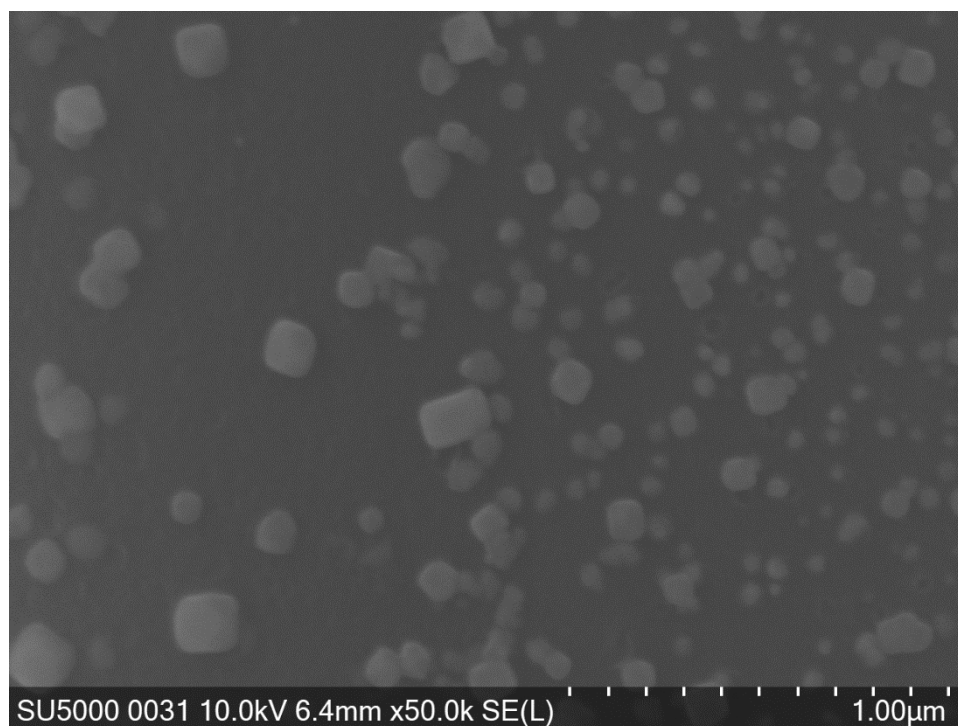


Figure S11. TCF sample irradiated at 4.25 W (42 J/cm^2).

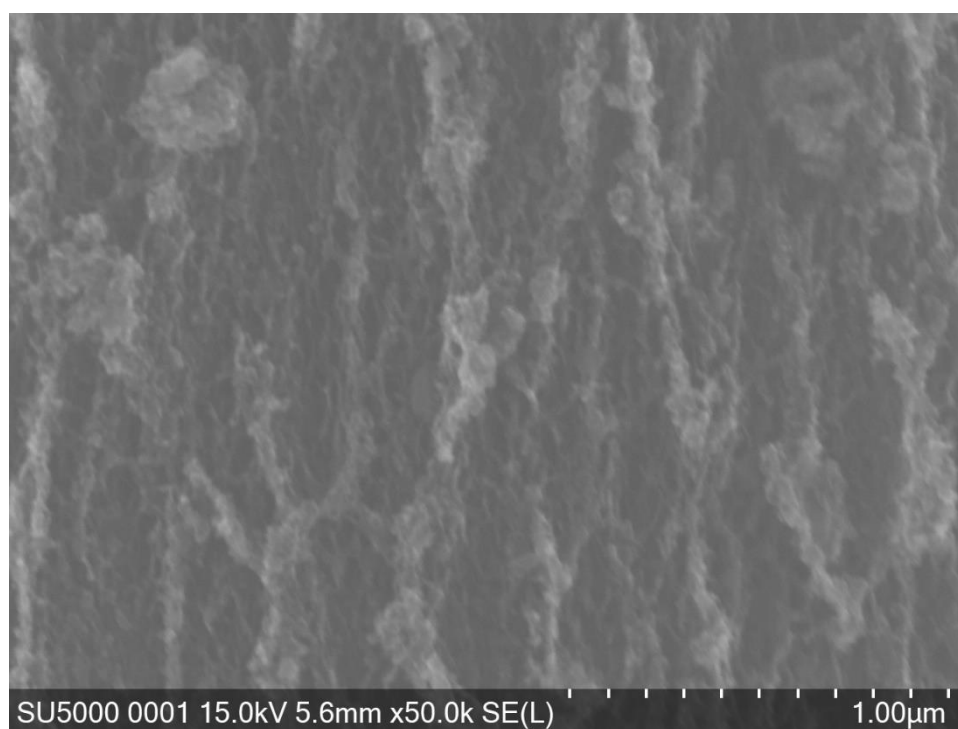


Figure S12. TCF sample irradiated at 4.75 W (47 J/cm^2).

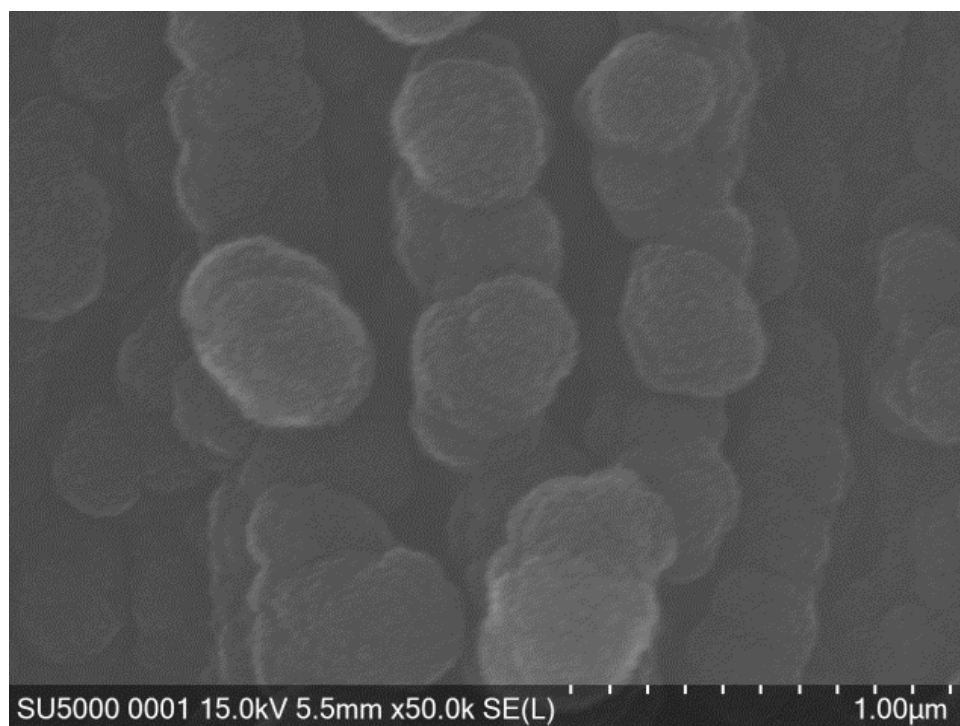


Figure S13. TCF sample irradiated at 7.5 W (74 J/cm²).

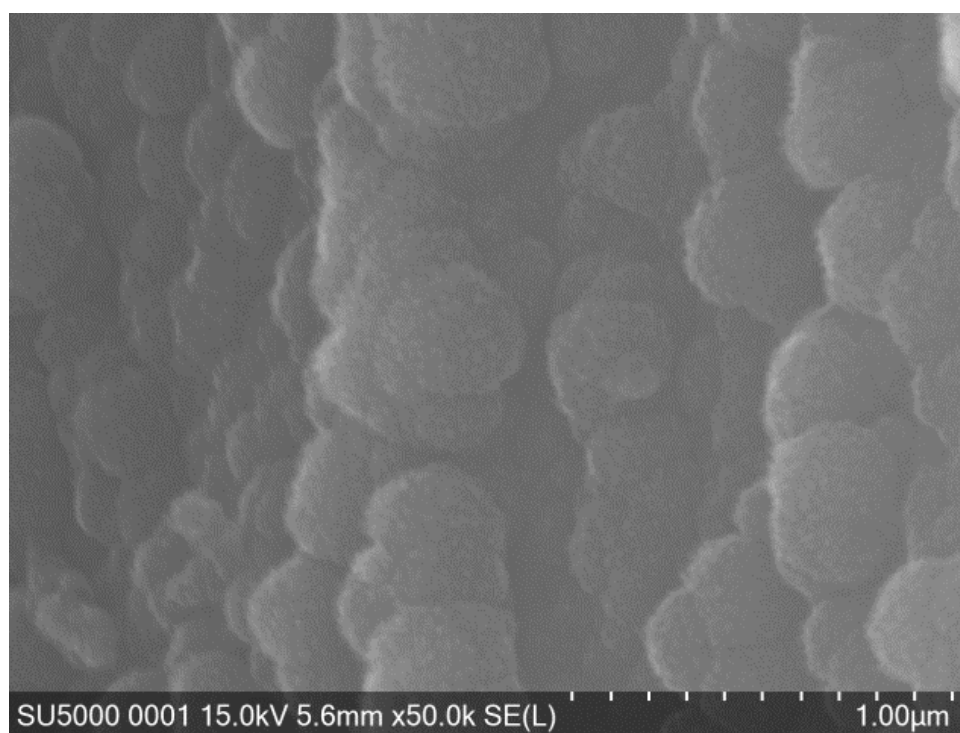


Figure S14. TCF sample irradiated at 10 W (99 J/cm²).

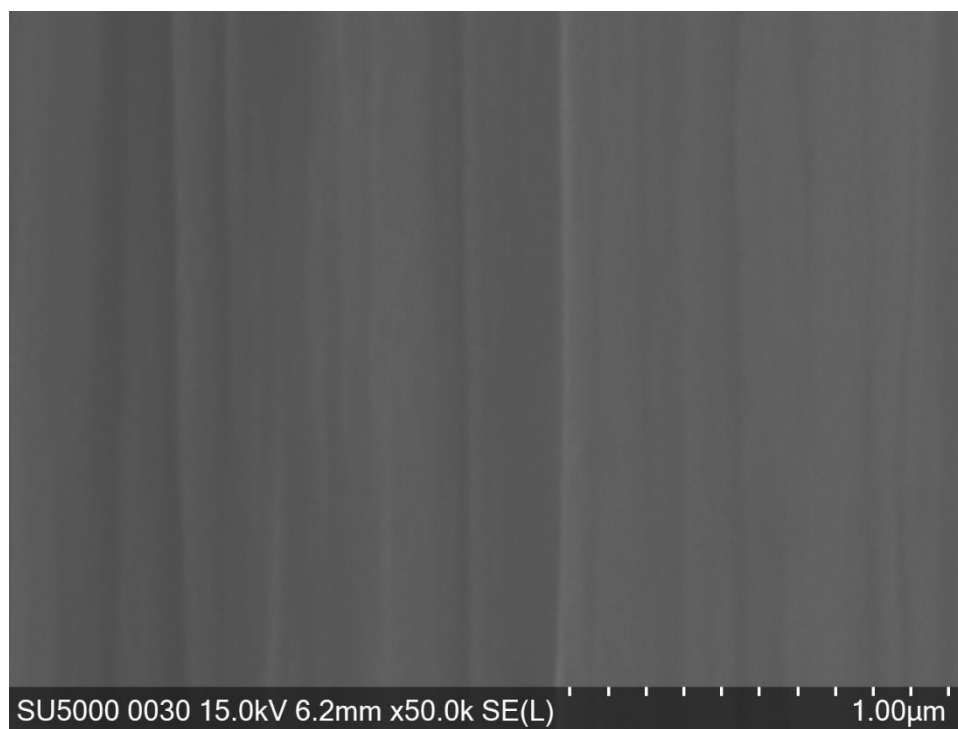


Figure S15. bPCF sample.

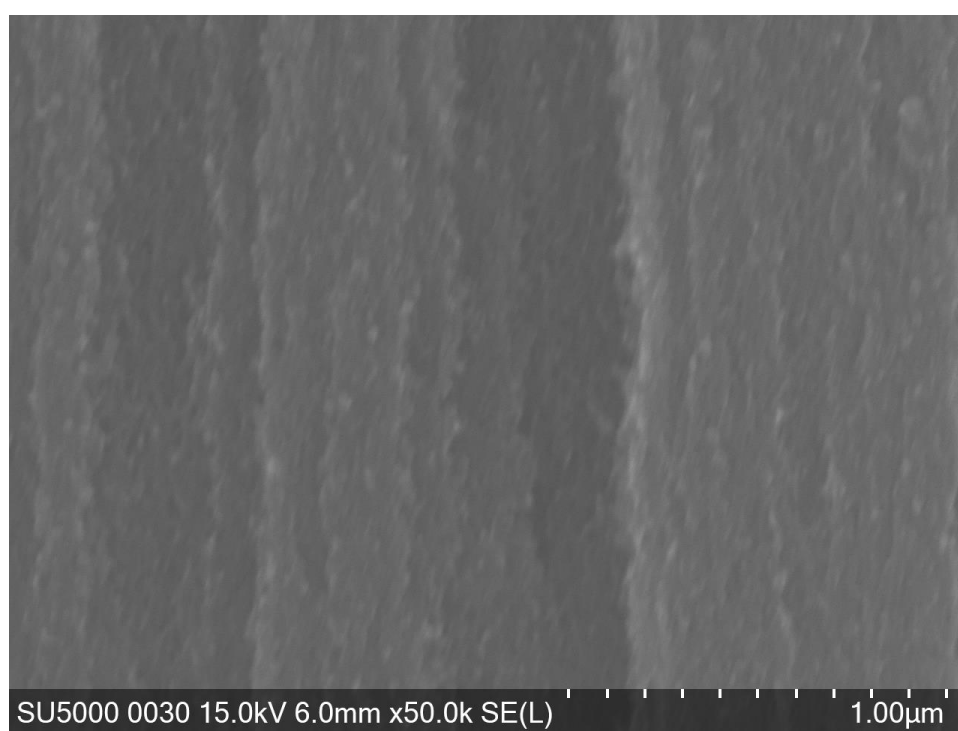


Figure S16. PCF sample irradiated at 4.25 W (42 J/cm^2).

S2. Raman characterization of the PCF UD cloths

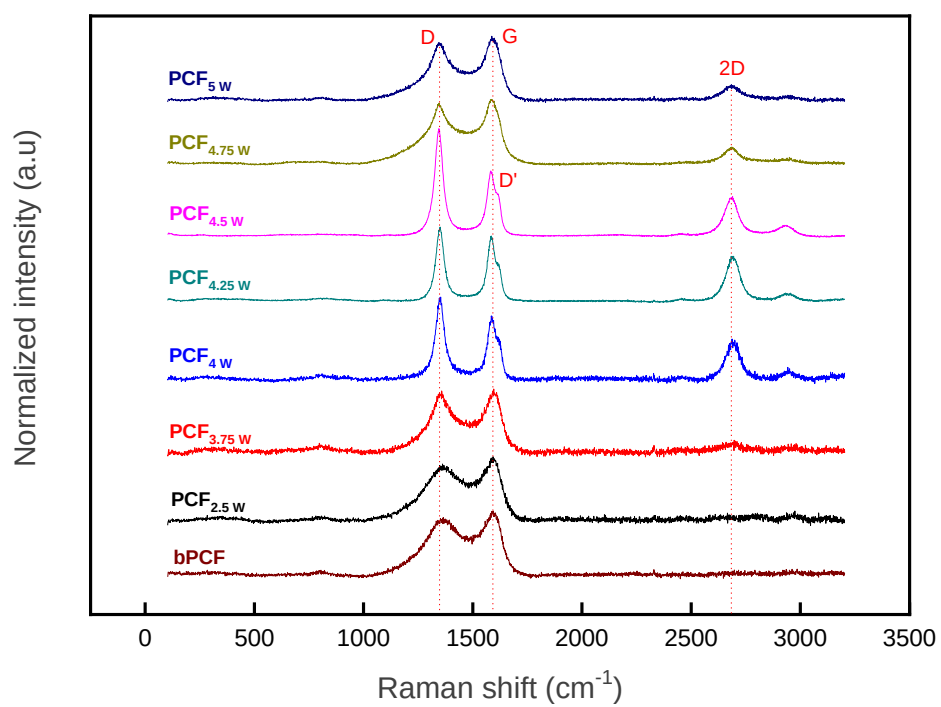


Figure S17. Raman spectra of PCF sample irradiated at various powers.