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Nanocavitation distribution and morphology evolution in deformed High Density PolyEthylene (HDPE)

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HIGHLIGHTS

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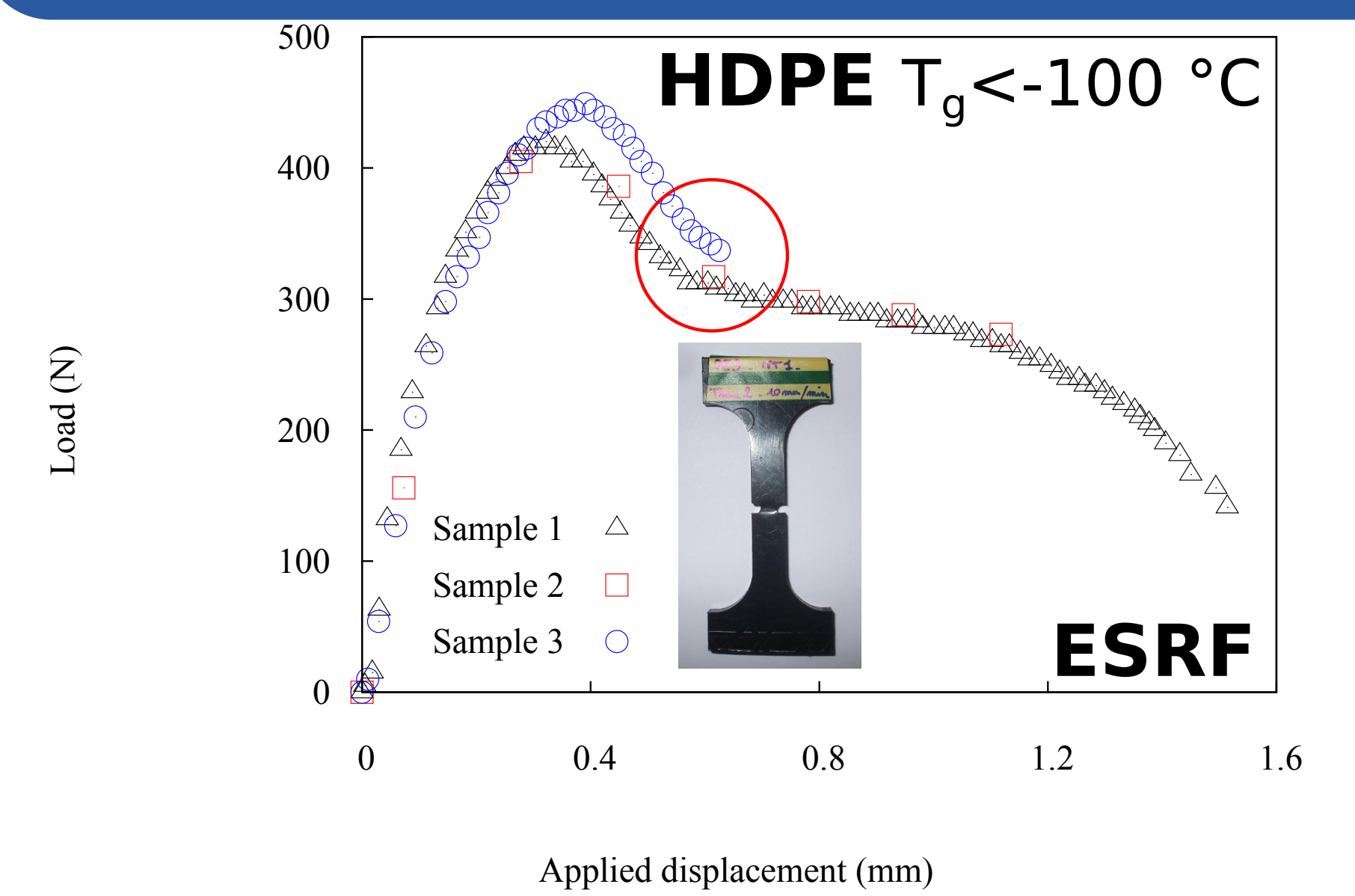
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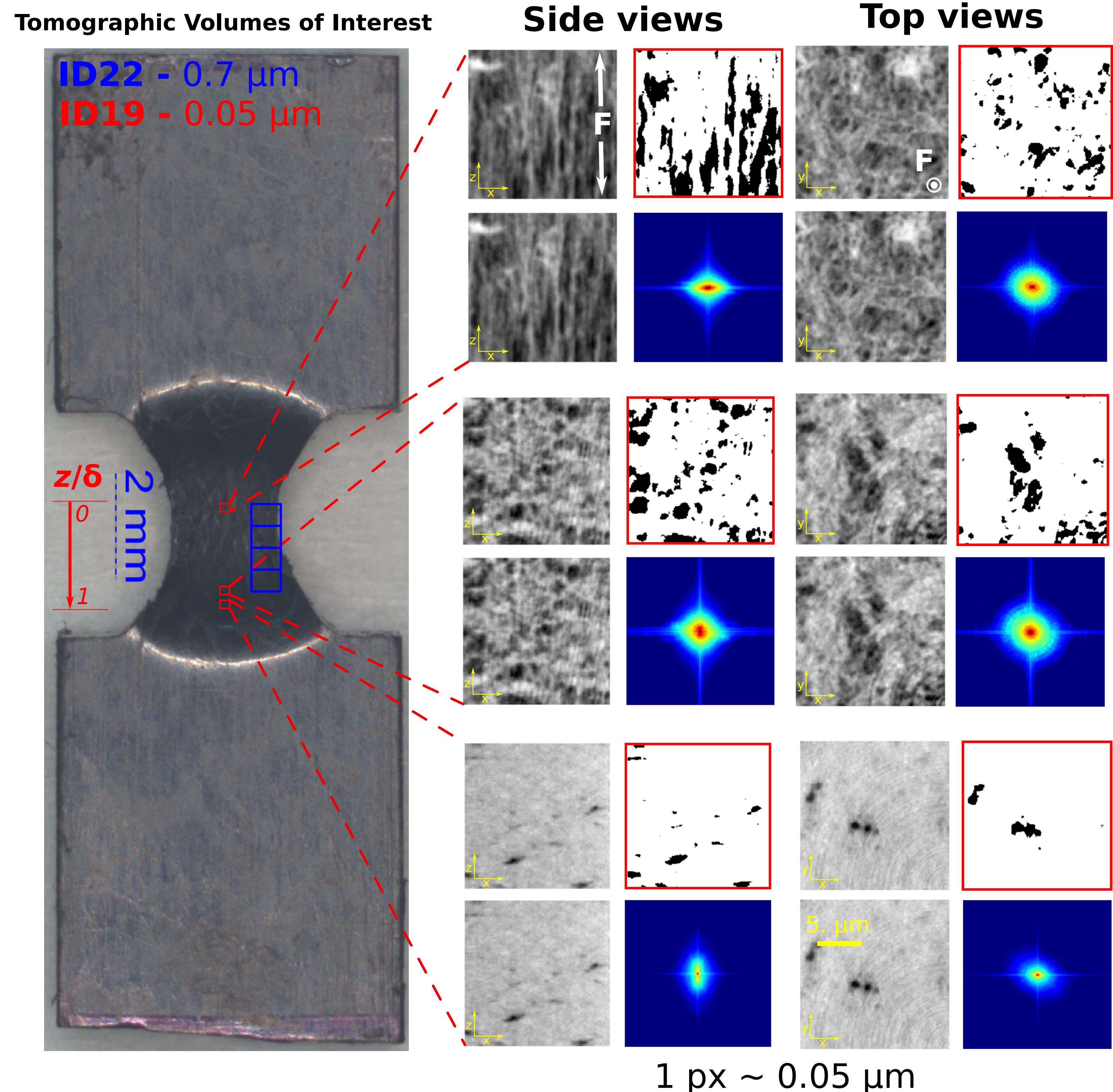
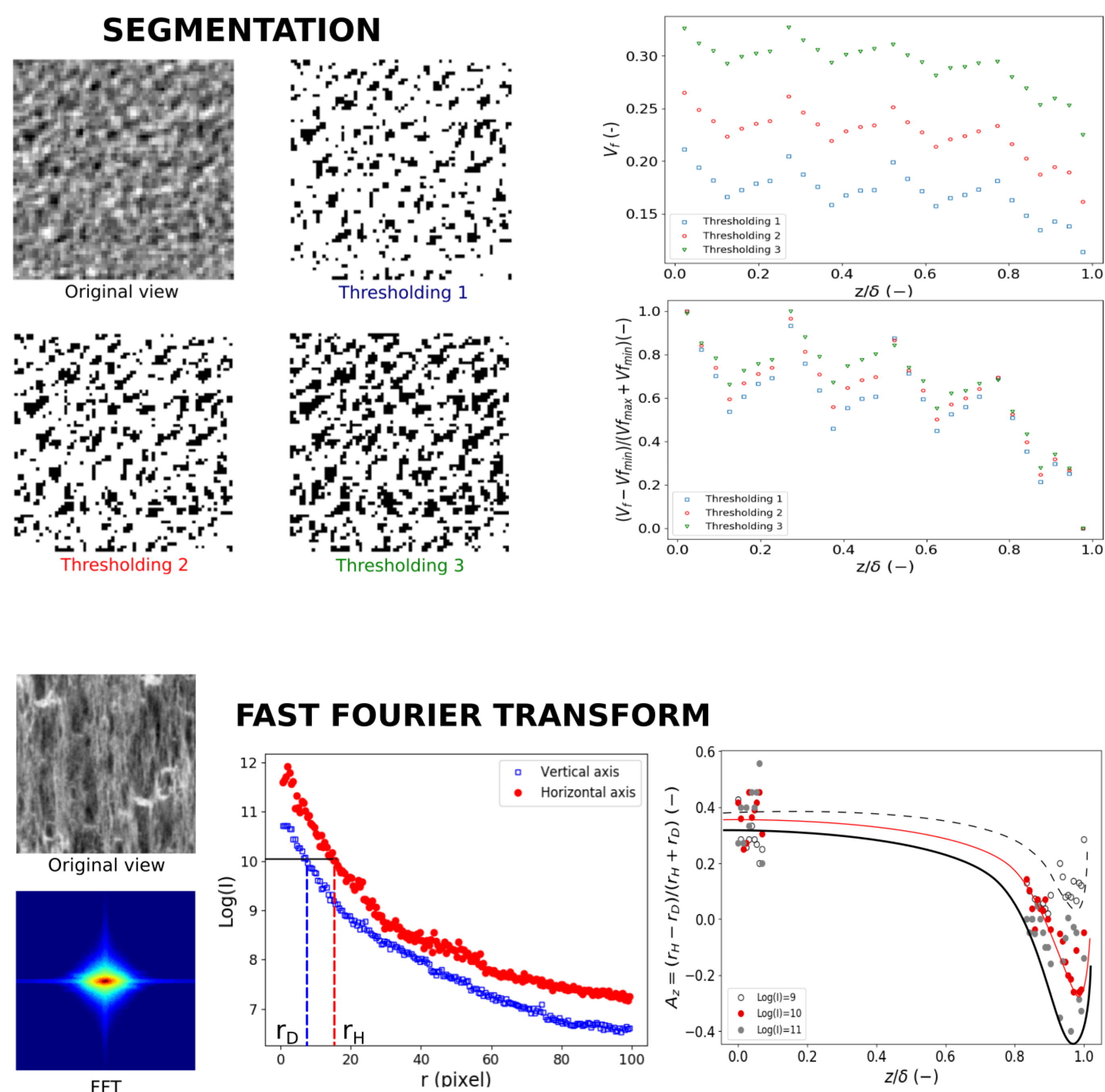
- Nanocavitation morphology and distribution revealed to be similar to cavitation mechanisms in other semi-crystalline polymers, but at a different scale.
- 3D image segmentation and 2D-Fast Fourier Transform were used to quantify the nanocavitation size and morphology distribution in deformed HDPE.
- The results provide compelling evidence of morphology transition of cavities within the test sample from an oblate to a prolate geometry.

EX-SITU TEST

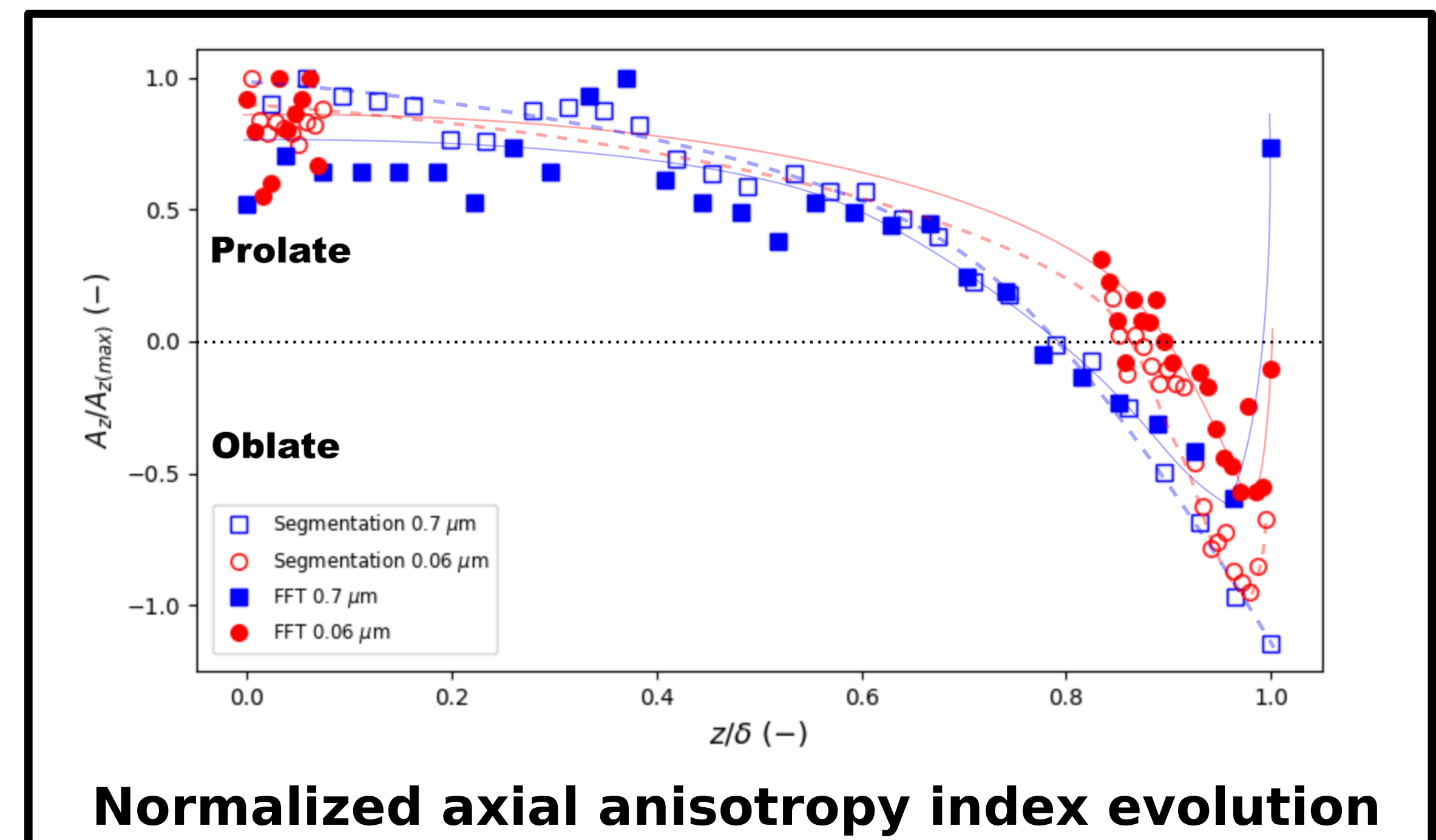
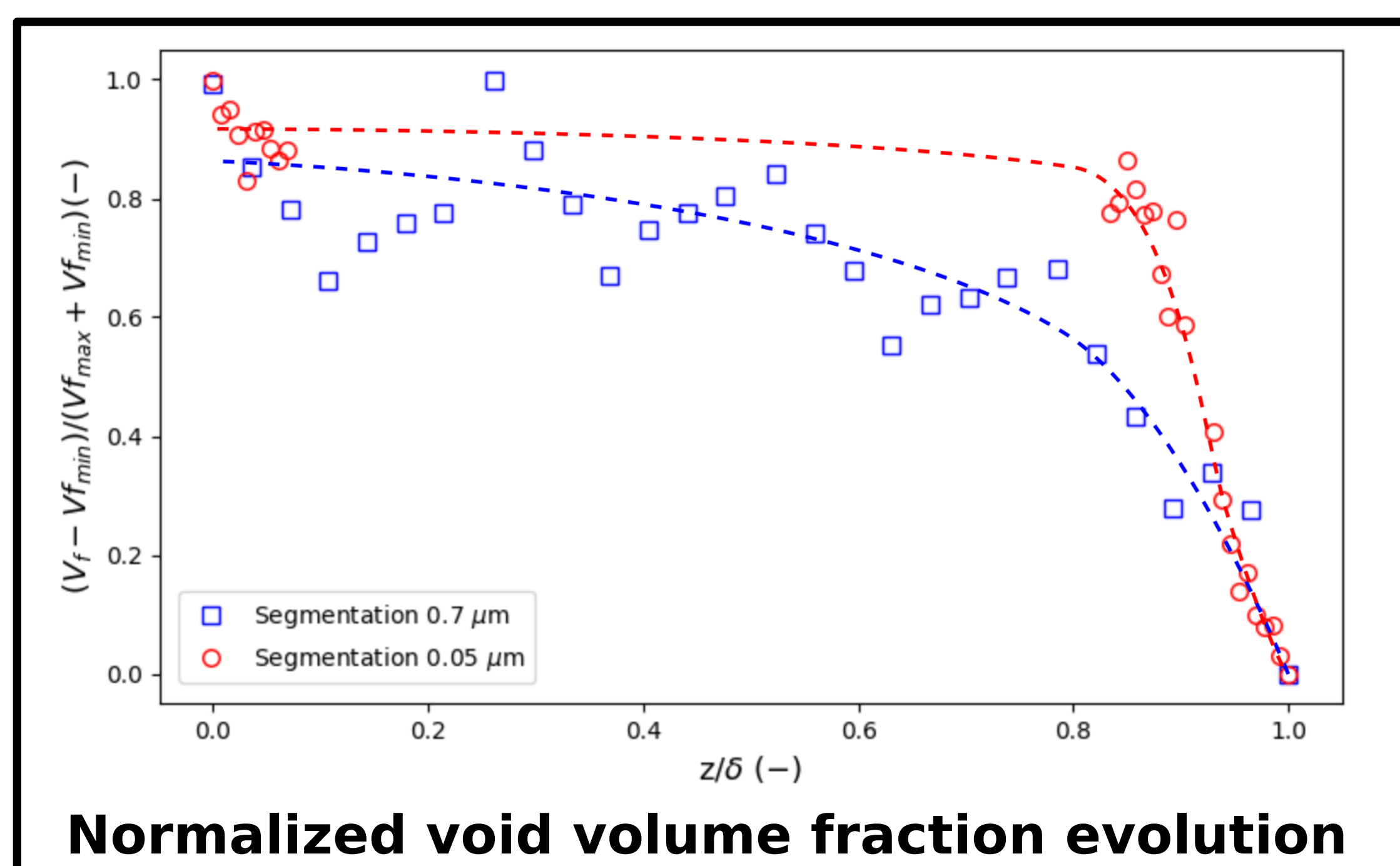


DATA TREATMENT

QUALITATIVE RESULTS



QUANTITATIVE RESULTS

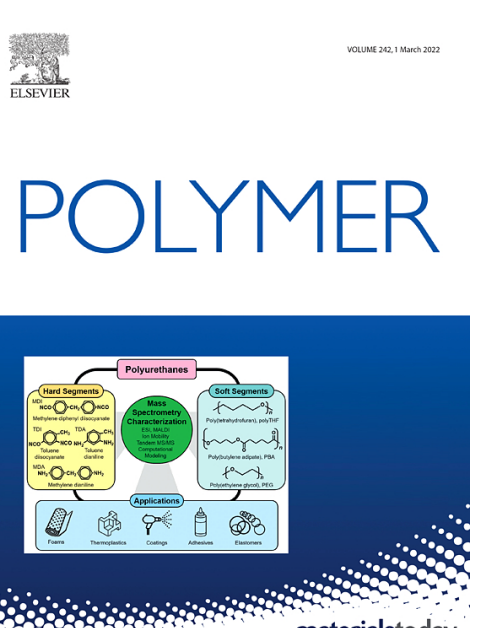


FURTHER READING

C. Ovalle, P. Cloetens, H. Proudhon, T.F. Morgeneyer, L. Laiarinandrasana, *Nanocavitation mechanisms in deformed High Density PolyEthylene (HDPE) using synchrotron radiation NanoTomography*, **Polymer** 229 (2021)

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