

Synthesis and Characterization of Mesocrystals for the Photodegradation of Microplastics

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- 2) **Obor:** mesocrystals, photocatalysis, microplastics
- 3) **Skupina:** Skupina struktury fází a termodynamiky:
<https://www.ipm.cz/skupiny/skupina-struktury-fazi-a-termodynamiky>
- 4) **Počet volných míst pro téma:** 1
- 5) **Úroveň pokročilosti:** Startovací téma
- 6) **Jazyk:** Angličtina
- 7) **Pracoviště:** Ústav fyziky materiálů, AV ČR, v. v. i., Žitkova 22, Brno
- 8) **Stručná anotace:** Mesocrystals are superstructures of crystallographically oriented nano/microcrystals that exhibit enhanced charge separation and light absorption, making them exceptional candidates for environmental remediation. This research focuses on the synthesis and characterisation of mesocrystals designed for the photocatalytic degradation of microplastics, an omnipresent threat. Characterisation methods, including XRD, Raman, XPS, FESEM, and UV-Vis spectroscopy, will be used to elucidate structural, morphological, and optical properties. The photocatalytic activity of these mesocrystals will be evaluated under light irradiation at various wavelengths, with the aim of breaking down common microplastics into environmentally benign by-products.