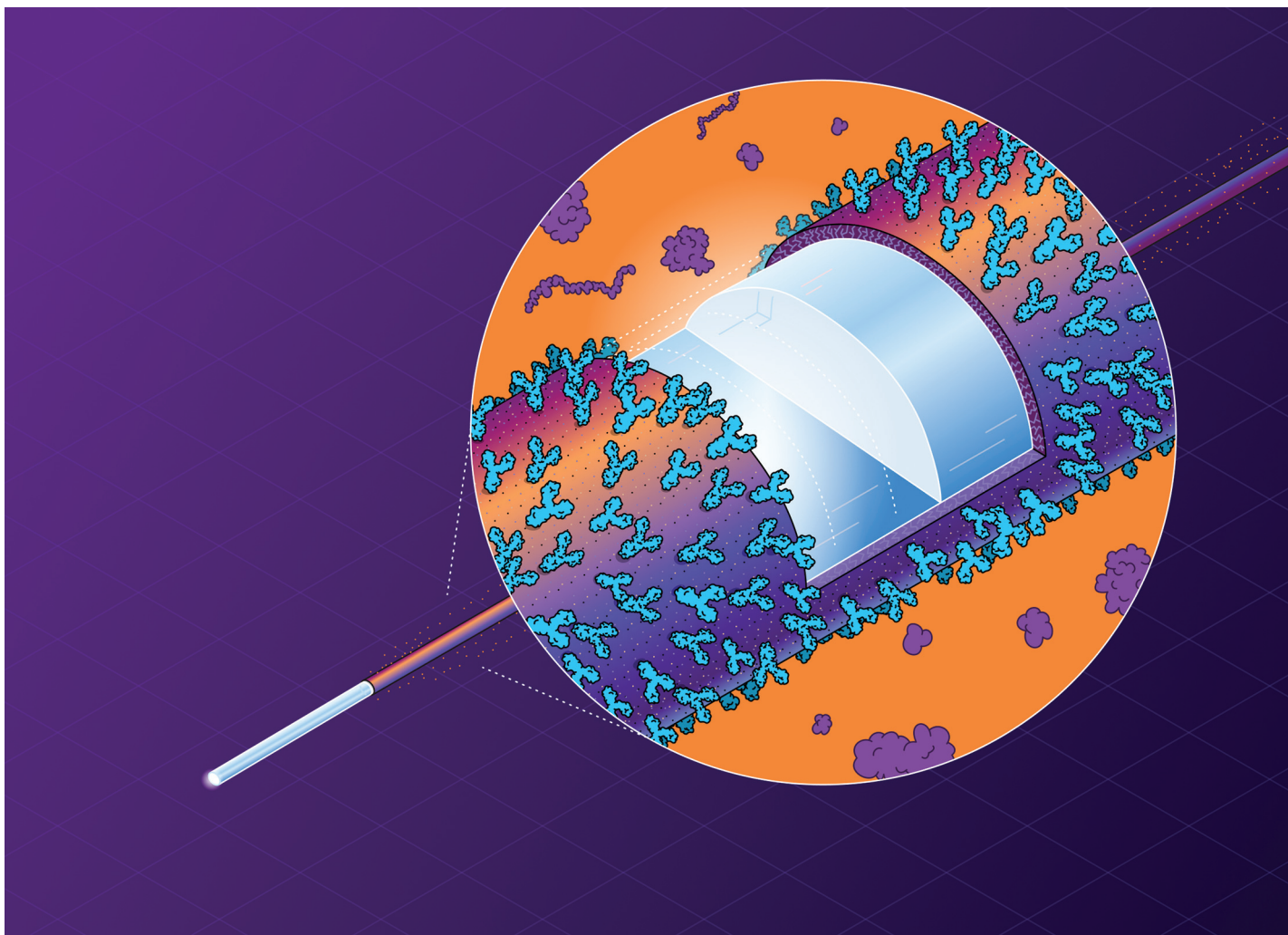


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Showcasing research from Dr. Hana Vaisocherová-Lísalová's Laboratory of Functional Biointerfaces, FZU – Institute of Physics of the Czech Academy of Sciences, Prague, Czechia, and Dr. Francesco Chiavaioli from Chemical and Biochemical Optical Sensor Group, Institute of Applied Physics “Nello Carrara”, National Research Council of Italy, Florence, Italy.

Optical fibre long-period grating sensors modified with antifouling bio-functional nano-brushes

Our study pioneers a post-modification strategy using terpolymer nano-brush grafted onto optical fibre long-period grating (LPG) sensors, achieving exceptional antifouling and biorecognition performance. We present direct synthesis of the nano-brush on LPG fibre sensors, ensuring their outstanding antifouling properties in complex media while enabling biorecognition element functionalization. The successful synthesis is confirmed *via* scanning electron microscopy, and the bioanalytical capabilities are demonstrated through fluorescence and label-free immunoassays. The terpolymer-coated LPG fibre sensors enable sensitive, real-time biomolecule detection in blood plasma, highlighting their potential for high-performance biosensing in healthcare and diagnostics.

As featured in:



See Francesco Chiavaioli, Hana Vaisocherová-Lísalová *et al.*, *Biomater. Sci.*, 2025, **13**, 1199.