Nanomachined tapered optical fibers for recording and controlling neural

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In this talk, new technological and methodological approaches for interfacing the brain by photonic technologies will be shown. Tapered optical fibers are nanomachined and processed to produce optical probes and optrodes for accessing deep brain regions in animal models with spatial and temporal resolution [1-3]. These minimally invasive probes can be simultaneously exploited in both optogenetics, for manipulation of neural activity, and for recording molecular and cellular activity in fiber photometry. It will be also shown how tapered fibers can be employed in-vivo in Raman and SERS spectroscopy experiments for tumoral tissue identification and label-free neurotechnology.

References

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