

## **Networks of electrospun nanofibers for tunable light sources**

Andrea CAMPOSEO - *NANO-CNR*

Light sources based on nanowires and nanofibers are very promising, because the geometrical features of either individual nanofibers or complex arrays made of them offer various possibilities for realizing miniaturized optical cavities. In such context, networks of randomly oriented nanofibers have recently emerged as a novel nanophotonic laser architecture, featuring multimode emission with properties controllable by the network topology. In this presentation, I will review our recent works aimed at the realization of complex networks of interconnected polymer nanofibers with optical gain. The light amplification in 2-dimensional and 3-dimensional arrays of nanofibers can be tailored by various approaches, including nanofiber composition and environmental stimuli.

This novel lasing platform is especially suitable for optical sensing and for miniaturized lasing sources for lab-on-a-chip devices. The research leading to these results has received funding from the Italian Minister of University and Research through the PRIN 201795SBA3, 2017PHRM8X and 20173L7W8K projects.