

Tapering optical fibers for biosensing applications

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Micro- and nano- tapered fibers are commonly used for label-free biosensing. Such tapers are made by heating a few millimeters of an optical fiber and during the heating the optical fiber is pulled until they reach an adiabatic shape. In order to produce these fibers, a fiber tapering setup is being developed using a ceramic micro heater. Among the technical challenges are: the heater mounting, characterizing the temperature profile inside the heater and measuring the thickness of the fiber during the pulling process. We expect to understand the multiple variable tapering choices via simulations with COMSOL.