# New methods to design double index chalcogenide glass fibers for IR optical applications

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Thanks to their exceptional transparency in the mid-infrared range, chalcogenide glass fibers of the tellurium, arsenic and selenium system are used as IR-evanescent-wave chemical sensors. The sensing zone of the fiber must be tapered to improve the IR detection. In order to obtain the suitable design, mechanical and/or chemical methods have been implemented in order to reduce the fiber diameter.

Another promising direction that has been developed, consists in fabricating core/clad fibers from preforms prepared by an in-situ process. This new procedure allows single-mode fiber drawing.