

## **Mid Infrared optical fibers – fabrication and applications**

The infrared limit of silica fibers is around 2.5 - 3 $\mu$ m. Thus, for the realization of new generation fiber lasers emitting in the mid-IR, other materials have to be considered and investigated.

In this lecture, the different infrared windows will be described and the interest of Mid-infrared (mid-IR) fibers and mid-IR fiber lasers will be presented. Furthermore, an overview about different materials and glasses that can be used for the realization of Mid-IR fibers will be discussed (Heavy oxides, fluorides, silver halides, chalcogenides ....).



Johann Troles, professor at the University of Rennes, was born in 1975. He has obtained his Ph.D degree in Chemistry in 2002 at the University of Rennes I. In 2003, he joined the Glasses and Ceramics group (Institut des Sciences Chimiques de Rennes). His research activities include the synthesis, the shaping and the characterizations of the chalcogenide glasses and fibers. Since 2004, he works on the preparation of high purity chalcogenide glasses and fibers and more particularly on microstructured fibers for applications in the near and the mid infrared.

The applications of such new fibers concern the realization of high power transmission fibers, new infrared sources more particularly on the generation of mid-infrared supercontinuum and, mid-infrared spectroscopy.