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## Infrared supercontinuum sources for seeing the invisible - IR Lasers make the invisible visible

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**Area of relevance:** Laser technology

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### Abstract:

Light plays a crucial role in solving today's main scientific and medical challenges. The molecules that define a disease, a pollution or an impurity in a food sample all have a characteristic optical fingerprint, which can be read by detecting the light that the sample absorbs. NKT Photonics have over the last five years build up a leading position within visible light supercontinuum sources for analysis of biological samples. Now NKT Photonics will together with researchers from the Technical University of Denmark and the University of Aarhus develop a new generation of lasers that have the same extreme bandwidth but cover the near infrared range from 2 to 5  $\mu\text{m}$ . Such a laser does not exist today, but it would have vast potential within chemical and biological analysis, as all chemical and biological materials absorb light within this range. A main challenge for the project is that conventional silica fibers have strong absorption and cannot be used for this area. Instead the project will utilize the new and emerging technology of soft glasses, which poses significant challenges in terms of fiber design and interfacing. An added advantage of the project, is that the development implies making new eye safe IR fiber lasers and high power amplifiers, which in themselves have commercial potential e.g. for monitoring of pollutants and in LIDARs. The project is supported by the Danish National Advanced Technology Foundation and has a total budget of 4 mio Euro.

