

## **Introduction to research in biophotonics**

### **ABSTRACT**

I will outline the specifications of a portable Biophotonics Workstation we recently have developed at DTU Fotonik that utilizes high-speed spatial light modulation to generate an array of currently up to 100 reconfigurable laser-traps making 3D real-time optical manipulation of biological or micro-fabricated structures possible with the use of joysticks or gaming devices. The fabrication of microstructures with nanometer-sized features, for example a nano-needle, coupled with the real-time user-interactive optical control allows a user to robotically actuate appended nanostructures depending on their intended function. These micro-platforms carrying nanotools are seen to have potential uses in a variety of micro-biological experiments. Optically actuated nano-needles may be functionalized or directly used to perforate targeted cells at specific locations or force the complete separation of dividing cells, among other functions that can be very useful for the group of microbiologists.