

**Generation of mid-infrared femtosecond radiation at high repetition rate under mixing tunable Ti:Sapphire and ytterbium femtosecond oscillators.**

The work is devoted to the search for simple circuit solutions for obtaining femtosecond laser radiation at a high repetition frequency ( $\sim 80$  MHz) in the mid-IR range (3 to 5  $\mu\text{m}$ ) in the process of generating a difference frequency when mixing tunable titanium - sapphire and ytterbium femtosecond oscillators. As a result of the work, a difference frequency generation unit based on oxide (lithium iodate) and non-oxide (LGS) crystals was developed and created, and generation of femtosecond pulses tunable in the wavelength range of 3–5  $\mu\text{m}$  was obtained with a conversion efficiency of 0.1%, which corresponds to the average power  $\sim 1 - 2$  mW.