

## Development of the novel MBE materials for III-V IR optoelectronics

**Novel Metamorphic periodic heterostructures** 

operating up to 20 µm wavelength

**Effusion Cells** 

## **Optoelectronics Group**

## **Novel Metamorphic Bulk InAsSb**

New class of the semiconductor heterostructures for infrared photonics beyond 10µm

## Changing the period of modulation, in InAsSb/InAsSb heterostructures, New substrate, virtual from 2.3 to 5.5 nm allows to reduce effective bangap from 100 to 60meV T = 20 K 19.6 μm 18 μm 14.5 μm 1 Normalized PL Intensity (a.u.) 5.48 nm 4.72 nm 3.20 nm 2.33 nm bulk InAsSb<sub>0.44</sub> Relaxed Linearly 0.2 graded 0.0 0.00 GaSb 0.05 0.10 0.15 substrat Photon Energy (eV) Cryo LN<sub>2</sub> Cryoshrouds In-situ control of crystal growth at the subnanometer scale Intermediate RHEED **Buffer Chamber** Ion Pump Gate Valve

Load Lock Chamber