

# séminaire

**vendredi 30 juin  
salle 11 11 heures**

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'Quasi-phase matched semiconductor waveguides for wavelength conversion in the mid-infrared.'

## Résumé :

The development of compact and tunable mid-infrared laser sources in the atmospheric transmission windows presents a major interest for several security and defense applications. Quasi-phase-matched sources in a guided wave configuration are promising solutions to enhance compactness and affordability, because of the reduction in pump power requirements with respect to bulk devices.

Significant progress has been made in this field at Thales Research and Technology along two routes. The first one consists in studying orientation-patterned gallium arsenide (OP-GaAs) waveguides, adapted to fiber laser pumping and to relatively high pump power. The second axis is devoted to the original idea of integrating an antimonide-based laser diode with a gallium antimonide (GaSb) frequency converter in a monolithic component. The goal in both cases is to minimize propagation losses in those waveguides to be able to exploit the whole potential of their non-linear properties. Recent results will be presented and put in perspective with plans for parametric frequency generation and supercontinuum generation in the long wave infrared domain.