

**Workshop on Advanced Optical Spectroscopy for Gas Detection
5th November 2020**

Co-Hosts: Tuomas Hieta (Gasera) & Geoff Barwood (NPL)



Locations Microsoft Teams (link to be circulated on registration)
Please register by **18th October 2020**
Time zone GMT (UTC+00:00)

Preliminary programme (20-minute talks + 5-minute questions)

09:15 Welcome

Introduction – sensing applications and laser spectroscopy

09:30 “*Optical gas sensing applications*”
Tuomas Hieta, Gasera

09:55 “*Introduction to laser spectroscopy*”
Geoff Barwood, NPL

Cavity-based techniques

10:20 “*Cavity ring-down spectrometer based on a widely tunable MIR OPO*”
Heleen Meuzelaar, VSL

10:45 “*Noise-immune cavity enhanced optical heterodyne molecular spectroscopy (NICE-OHMS) – ultra-sensitive gas sensing*”
Nicola Black, NPL

11:10 Virtual tea/ coffee break

Single laser frequency spectroscopic techniques

- 11:30 *“Optical detection of reactive gases”*
Timo Rajamäki, VTT & Optoseven
- 11:55 *“Progressing optical gas standard concepts – from environmental measurements to industrial process control and AMC monitoring”*
Zhechao Qu, PTB
- 12:20 *“Industrial applications of laser dispersion spectroscopy”*
Richard Kovacich, Mirico
- 12:45 *“Cantilever enhanced photoacoustics (CEPAS) in gas sensing”*
Tuomas Hieta, Gasera
- 13:00 Lunch
- Comb-based techniques
- 14:00 *“Watt-level, super-octave mid-IR frequency combs”*
Sergey Vasilyev, IPG Photonics
- 14:25 *“High-resolution gas phase spectroscopy with quantum cascade laser frequency combs”*
Markus Mangold, IR Sweep
- 14:50 *“Gas sensing using Fourier transform spectroscopy based on optical frequency combs”*
Lucile Rutkowski, Université de Rennes
- 15:15 *“Photo-acoustic spectroscopy and hyperspectral gas imaging with dual-frequency combs”*
Tobias Herr, Swiss Centre for Electronics and Microtechnology
- 15:40 Closing Remarks