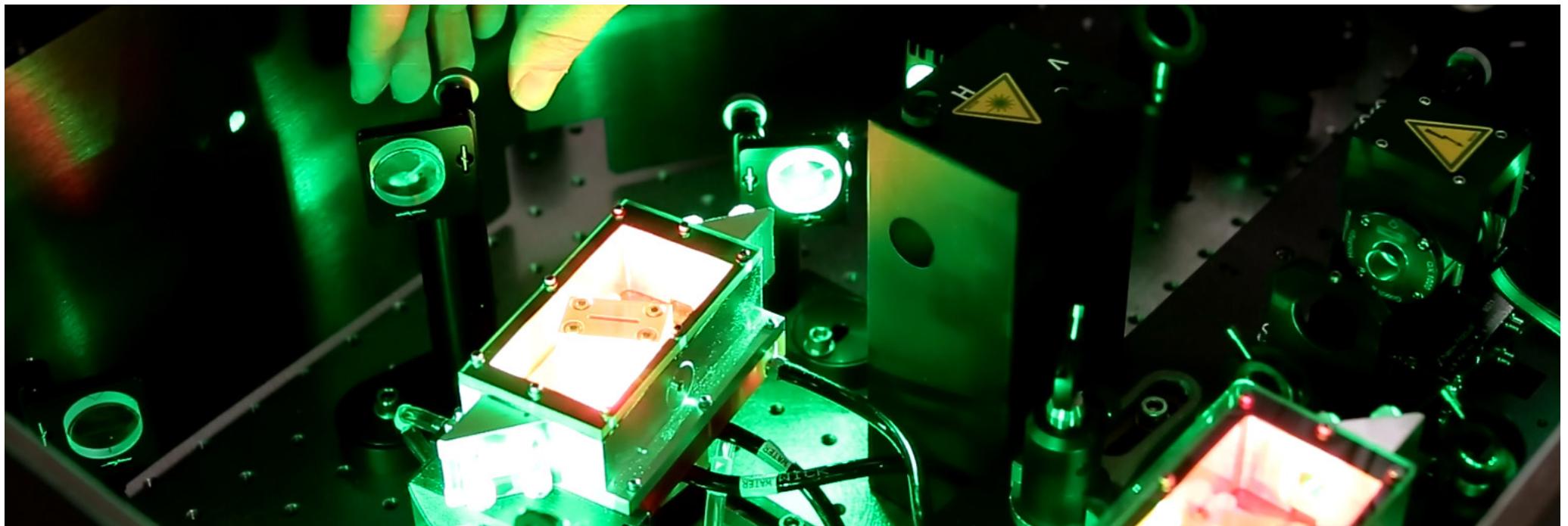


# femtolabs @NRC



Paul Hockett & Rune Lausten

*femtolab.ca*

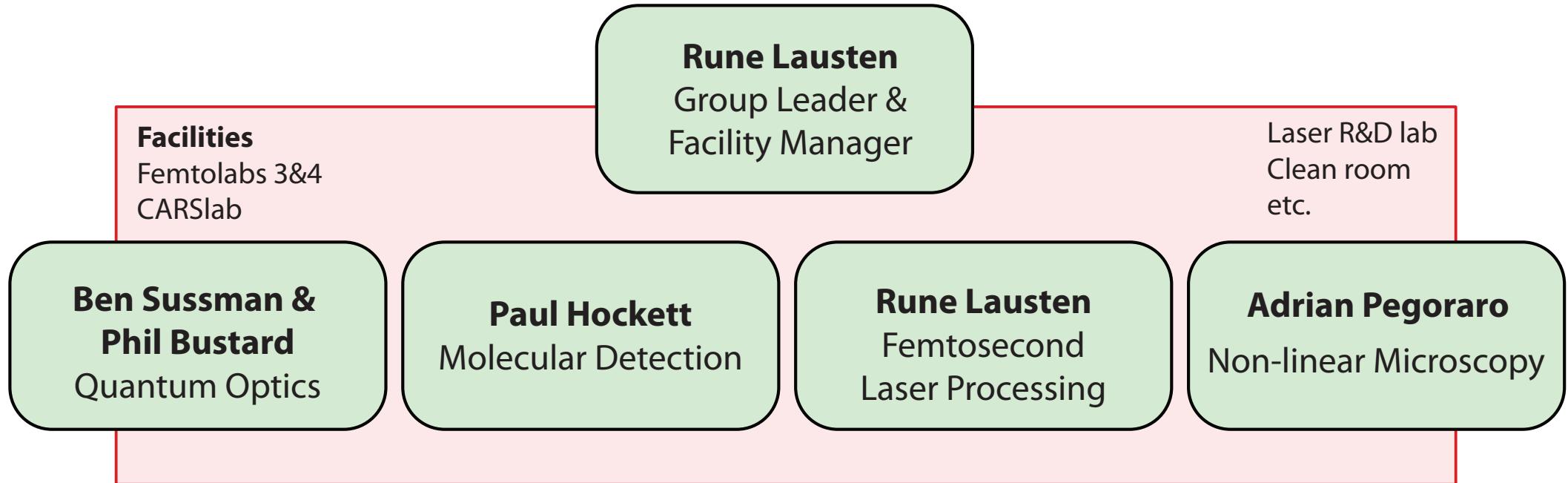
*National Research Council of Canada, Ottawa*

Available via Figshare, DOI: [10.6084/m9.figshare.4906889](https://doi.org/10.6084/m9.figshare.4906889)

*femtolab.ca*



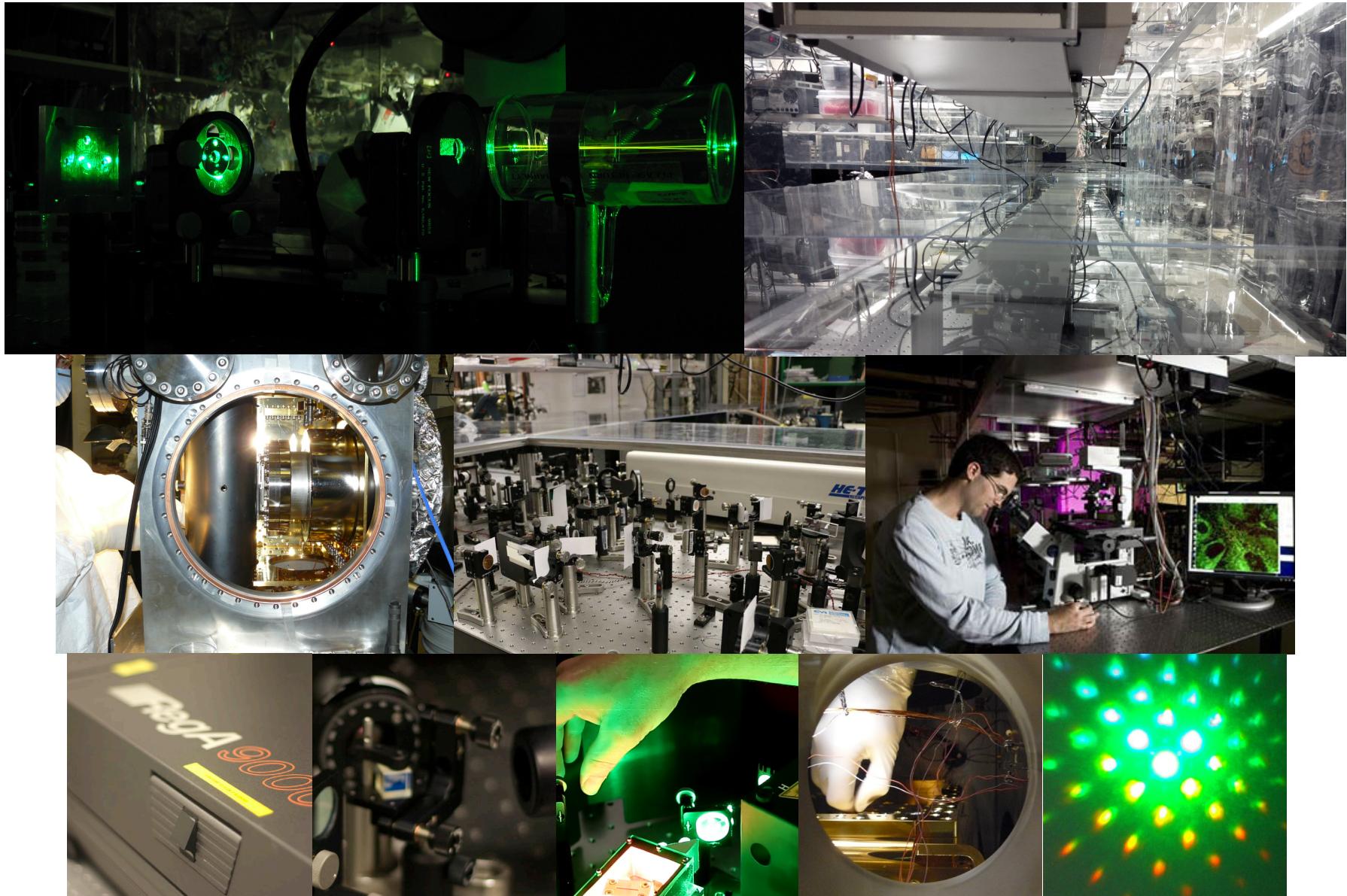
# who are we...



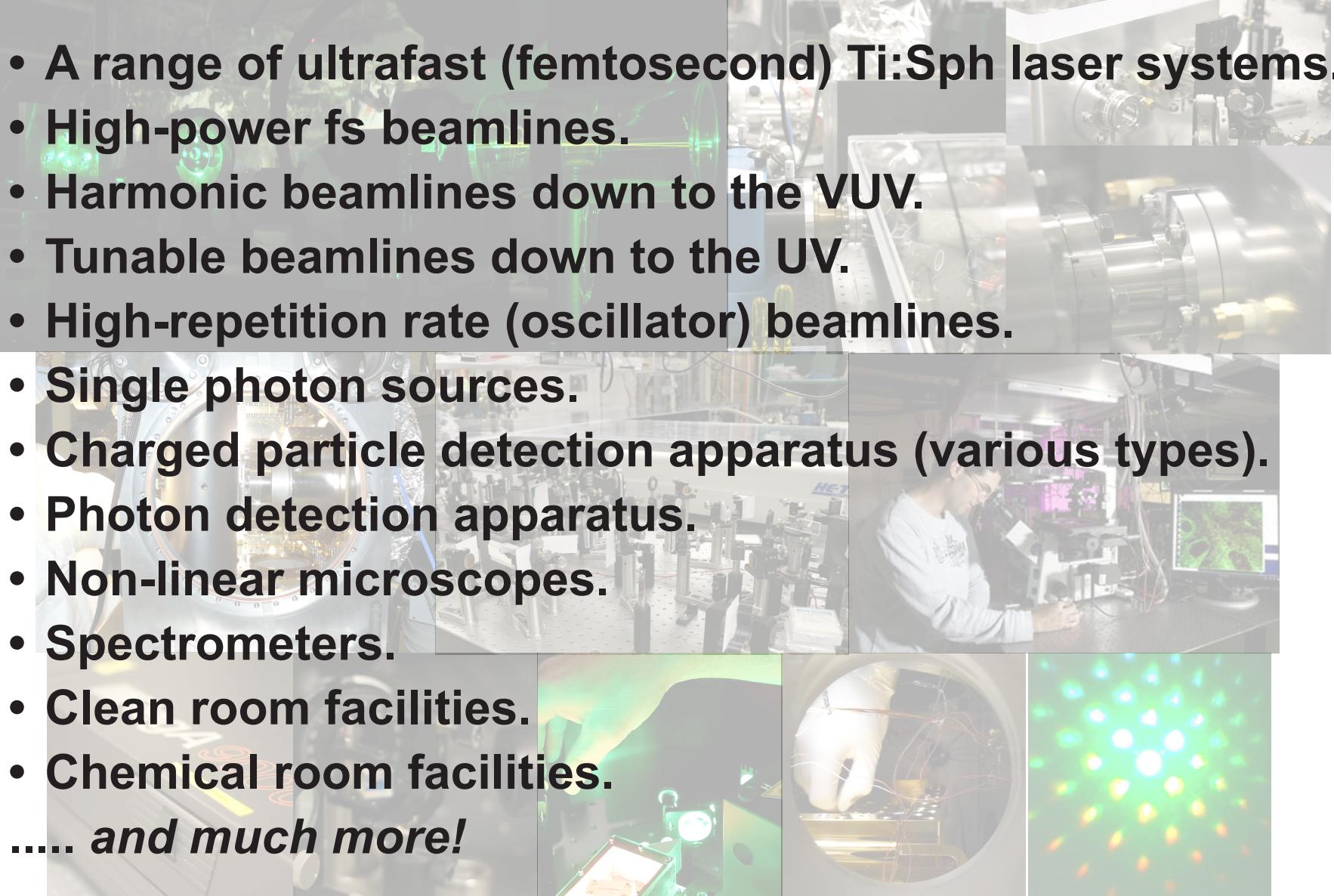
A team of NRC staff scientists researching ultrafast light-matter interactions and quantum optics.



# femtolab: ultrafast laser facilities...



# femtolab: ultrafast laser facilities...

- A range of ultrafast (femtosecond) Ti:Sph laser systems.
  - High-power fs beamlines.
  - Harmonic beamlines down to the VUV.
  - Tunable beamlines down to the UV.
  - High-repetition rate (oscillator) beamlines.
  - Single photon sources.
  - Charged particle detection apparatus (various types).
  - Photon detection apparatus.
  - Non-linear microscopes.
  - Spectrometers.
  - Clean room facilities.
  - Chemical room facilities.
- ..... and much more!*
- 



# research interests

*Established*



*New  
directions*



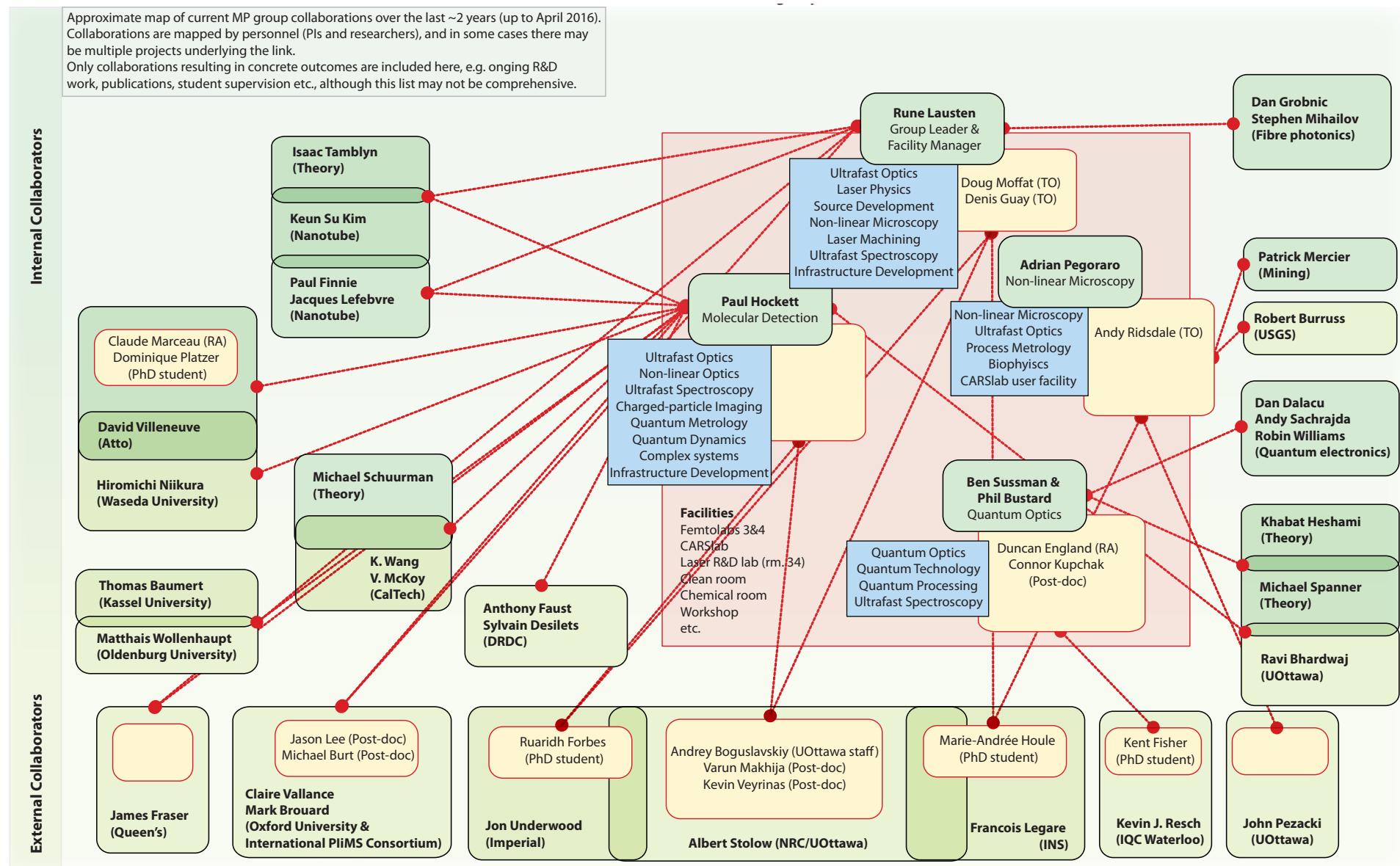
Established directions: proven historic track record, areas which have fed into core competencies and infrastructure.

Emerging areas: track recovered over previous 1-2 years

New directions: underway within the last year, or currently in development.

The size of the area approximates the scale/importance/impact/investment (with the latter definition applying most clearly to historic areas, the former more to emerging areas), overlaps and prerequisites are shown where possible.

# colleagues & collaborators



We work with many researchers across the NRC and beyond.

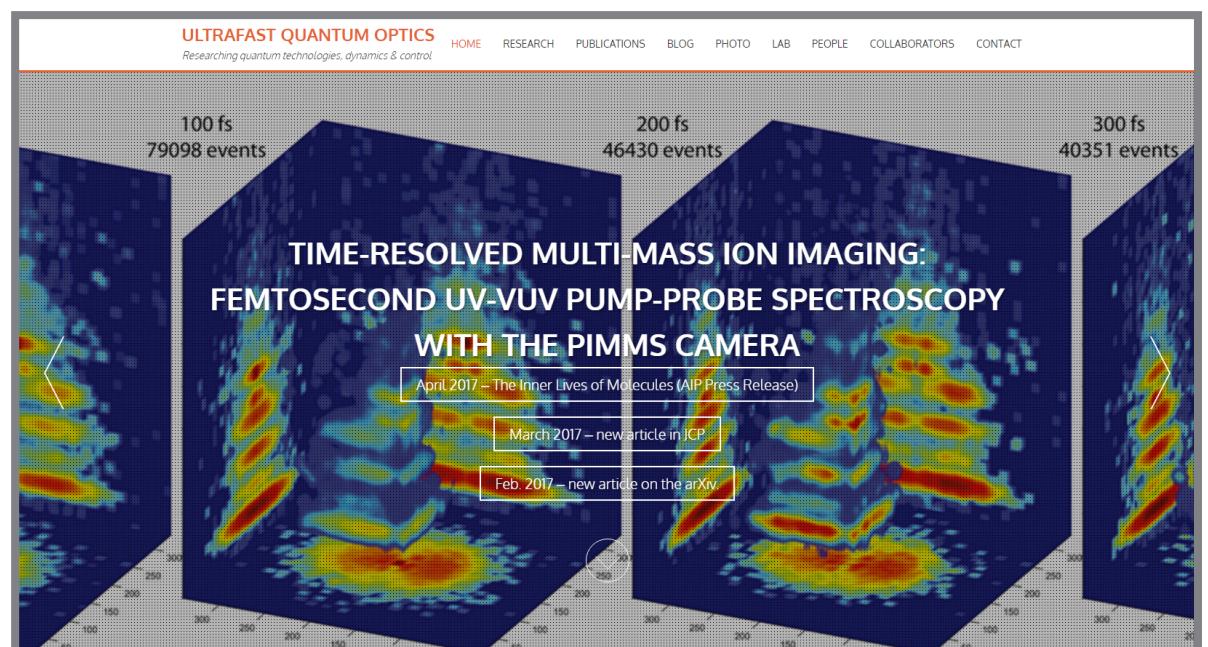
[femtolab.ca](http://femtolab.ca)

# where are we



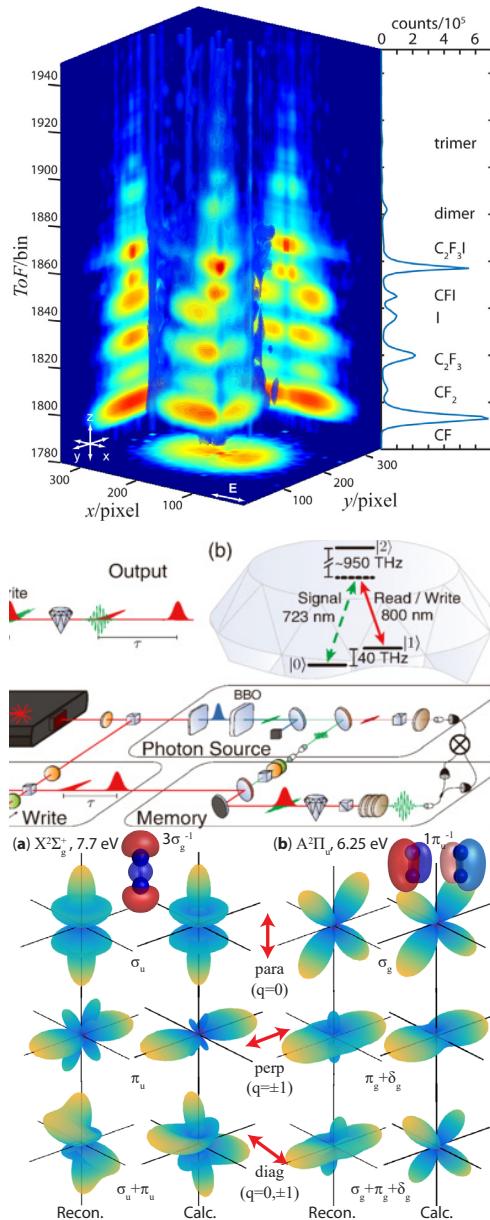
NRC, 100 Sussex Drive,  
Ottawa, ON, Canada

Web: [femtolab.ca](http://femtolab.ca)



[femtolab.ca](http://femtolab.ca)

# recent publications



## Time-resolved multi-mass ion imaging: femtosecond UV-VUV pump-probe spectroscopy with the PImsMS camera

Ruaridh Forbes, Varun Makhija, Kevin Veyrinas, Albert Stolow, Jason W. L. Lee, Michael Burt, Mark Brouard, Claire Vallance, Iain Wilkinson, Rune Lausten and Paul Hockett

*Journal of Chemical Physics, special issue Developments and Applications of Velocity Mapped Imaging Techniques*

(147, 013911, 2017), DOI: 10.1063/1.4978923

## Phonon-Mediated Nonclassical Interference in Diamond

Duncan G. England, Kent A. G. Fisher, Jean-Philippe W. MacLean, Philip J. Bustard, Khabat Heshami, Kevin J. Resch, and Benjamin J. Sussman

Phys. Rev. Lett. 117, 073603, 2016, DOI: 10.1103/PhysRevLett.117.073603

## Bootstrapping to the Molecular Frame with Time-domain Photoionization Interferometry

Claude Marceau, Varun Makhija, Dominique Platzer, A. Yu. Naumov, P. B. Corkum, Albert Stolow, D. M. Villeneuve and Paul Hockett

Phys. Rev. Lett. (under review, 2017),

arXiv 1701.08432 (<https://arxiv.org/abs/1701.08432>).

See [femtolab.ca](http://femtolab.ca) for the full list.

# new collaborations...?

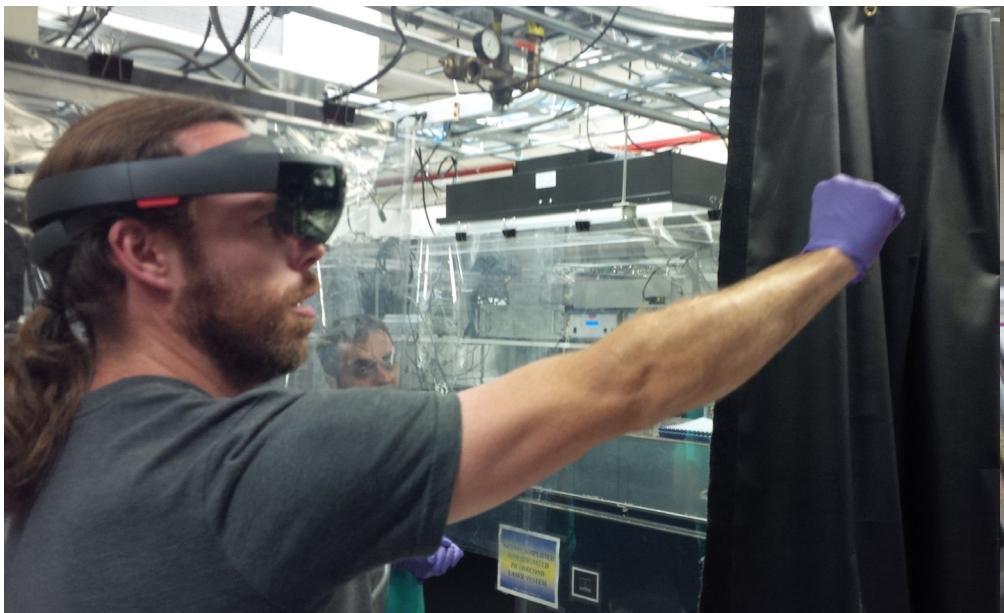
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We're always interested in new collaborations and new directions...

If you have an idea, or work that could benefit from our expertise and facilities...

*...please get in touch!*

[rune.lausten@nrc.ca](mailto:rune.lausten@nrc.ca)



[paul.hockett@nrc.ca](mailto:paul.hockett@nrc.ca)



*Testing augmented reality (Microsoft Hololens) for physics research applications.*



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