

CURRICULUM VITÆ – FREDRIK JONSSON



1. Biographical and personal information

Karl Fredrik Jonsson, born February 15, 1972, in Södertälje, Sweden.

Residence: Norrlanda Liste, SE-622 50 Romakloster, Sweden

Web site: <http://jonsson.eu> (lectures, computer code and reprints)

Married to Åsa Jonsson. Four sons: Harald, Arvid, Einar and Yngve.

2. Academic record

PhD in physics (*Teknologie Doktor*), the Royal Institute of Technology, Stockholm, 2000.

Thesis: *The Nonlinear Optics of Magneto-Optic Media*, ISBN 91-7170-575-9. Available at the National Library of Sweden (Kungl. Biblioteket) or <http://jonsson.eu>.

Faculty opponent: Prof Yuen-Ron Shen, University of California at Berkeley.

Scientific supervisor and mentor: Prof Christos Flytzanis, Ecole Polytechnique, France.

MSc in engineering physics (*Civilingenjör Teknisk Fysik*), the Royal Institute of Technology, Stockholm (1995). Undergraduate studies 1991–1995; Military service as computer programmer in the Swedish Navy during 1994.

3. Scientific production in summary

23 peer-reviewed articles in scientific journals (of which 4 in the *Physical Review Letters*).

12 patents on 4 separate inventions.

53 conference publications (of which 21 invited talks).

More than 1000 hours of teaching experience at university level, in electromagnetism, wave theory, geometrical optics and nonlinear optics.

4. Employment history

Micronic Mydata AB, Stockholm, 2007–present.

2012–present, Manager R&D / Optics & Calibration.

2011–present, Senior Specialist – Computational Physics.

2009–2011, Chief Designer – System Calibration.

2008–2009, Acting Manager R&D / Physics.

University of Southampton, England, 2005–2007.

Portfolio Project Leader, Optoelectronics Research Centre, Nanophotonics Group of Prof Nikolay Zheludev. Research on phase-change memory functionality of nanoparticles and generation of surface plasmons by electron injection. Development of the first-ever scanning electron microscope with capability of imaging of plasmonic distributions.

Tyndall National Institute, Cork, Republic of Ireland, 2003–2005.

Postdoctoral Fellow, Photonic Nanostructures Group of Prof Clivia Sotomayor Torres. Research on fabrication of photonic crystals and alignment techniques for the intentional inscription of defects by electron beam lithography in self-assembled nanostructures.

Proximion Fiber Optics AB, Stockholm, 2001–2003.

Research Scientist, Research & Development. Development of inverse scattering theory of acousto-optical wave interactions in chirped fiber Bragg gratings for optical-layer monitoring devices. Designer of an apparatus for inscription of Bragg gratings in optical fibers. Development of attenuating optical coatings and theoretical models for long-term ageing issues of fiber Bragg gratings.

Ericsson Radio Systems AB, Stockholm, 2000–2001.

Project Manager Opto Technology, Department of Generic Technologies, ERA/X/L. Main responsible for project on development of high-speed parallel-optical 30 Gbps interconnects and building practices. Manager for the Ericsson part in a collaboration project in optical interconnects together with Chalmers University of Technology, Gothenburg, Sweden.

Royal Institute of Technology, Stockholm, 1996–2000.

Graduate student (Doktorand) at the Department of Physics-Optics. Research on nonlinear magneto-optical interactions in micro-cavities and parametric oscillators. Development of

theoretical models and experiments performed in collaboration with Prof Christos Flytzanis, heading the Laboratoire d'Optique Quantique, Ecole Polytechnique, France.

Institute of Optical Research, Stockholm, 1995–1996.

Research engineer in the Integrated Optics group. Research on polymeric waveguides and algorithms for numerical simulation of electromagnetic wave propagation. In the characterization of waveguides, the project involved the development of a near-field fibre-optic scanner of mode profiles, much in line with today's scanning near-field optical microscopes (SNOM).

Swedish Colour Foundation, 1994–1995.

Research on colour perception and computer cognition. Research on algorithms for automated recognition of NCS-coordinates of colour samples, involving implementation of an artificial neural network and related training software for computer cognition. Project carried out during my military service and undergraduate studies, as a spin-off from a project carried out for the Swedish Colour Foundation during the summer of 1993.

5. Fellowships and awards

Postdoctoral Fellowship, Science Foundation Ireland, 2004.

Lars Hierta scholarship 1999.

Lars Hierta scholarship 1997.

Göran Gustafsson scholarship 1996, providing four years of full-time funding from the Göran Gustafsson foundation for my PhD studies.

6. Academic commitments

Supervisor of Master student Alexandru Topor, for Degree of Master of Science in Engineering, at the Department of Production Engineering, School of Industrial Engineering and Management, the Royal Institute of Technology, 2013. Alexandru Topor's thesis, *Optical Correlation Techniques for Alignment in Future Pattern Generators*, ISBN 978-91-7501-812-6, received the highest possible grade at the examination.

Supervisor of PhD students Bruno Soares (optical phase-change memories), Andrei Denisyuk (optically assisted growth of gallium nanoparticles) and Maxim Bashevoy (surface plasmon polaritons and imaging of plasmonic distribution by means of electron injection), at the University of Southampton, School of Physics and Astronomy, 2005–2007.

The work by Bruno Soares showed, for the first time ever, on an optically addressed quaternary solid-state phase-change memory. The work was published in the *Physical Review Letters* and was featured by *Nature Nanotechnology* (April 2007; doi:10.1038/nnano.2007.138) as well as *Physical Review Focus* (April 2007; doi:10.1103/physrevfocus.19.12).

The work by Maxim Bashevoy resulted in the first-ever implementation of a scanning imaging system capable of simultaneously sampling spatial as well as spectral plasmonic distributions (hyperspectral imaging of plasmonic distributions).

Lecturer in the graduate course *Nonlinear optics* (5A5513, 5p), 2003.

Course held January–April 2003, at the Department of Laser Physics and Quantum Optics, the Royal Institute of Technology, Stockholm.

Lecture notes published as *Lecture Notes on Nonlinear Optics* (Transactions of the Royal Institute of Technology, Stockholm, 2003, 168 pages), ISBN 91-7283-517-6.

Faculty opponent at defence of thesis for degree of Licentiate of Engineering, May 11, 2001.

Defendant: Håkan Forsberg, Department of Computer Engineering, Chalmers University of Technology, Gothenburg, Sweden.

Thesis: *Parallel Computer Architectures Using Optical Interconnects*.

7. Patents

- [1] US Patent 8,570,535, *Pattern generators, calibration systems and methods for patterning workpieces*, A. Svensson and F. Jonsson (US Patent, filed March 2011).
- [2] PCT/EP2011/053241, *Pattern generators comprising a calibration system*, A. Svensson and F. Jonsson (International PCT Patent, filed March 2011).

- [3] CA 2622813, *Transport capillaire de nanoparticules ou de microparticules pour former une structure ordonnee / Capillary transport of nanoparticles or microparticles to form an ordered structure*, F. Jonsson, J. Ahopelto, S. Arpiainen, C. Sotomayor Torres (Canadian Patent Pending, filed February 2008, published September 2008).
- [4] US/20080220159, *Capillary transport of nanoparticles or microparticles to form an ordered structure*, F. Jonsson, J. Ahopelto, S. Arpiainen, C. Sotomayor Torres (US Patent Pending, filed September 2008).
- [5] EP-1964946, *Capillary transport of nanoparticles or microparticles to form an ordered structure*, F. Jonsson, J. Ahopelto, S. Arpiainen, C. Sotomayor Torres (European Patent Pending, filed February 2008, published September 2008).
- [6] FI-20075153, *Capillary transport of nanoparticles or microparticles to form an ordered structure / Nano- tai mikropartikkeleiden kapillaarien kuljetus järjestetyn rakenteen muodostamiseksi / Kapillär transport av nano- eller mikropartiklar för bildning av en ordnad struktur*, F. Jonsson, J. Ahopelto, S. Arpiainen, C. Sotomayor Torres (Finnish Patent application, filed March 2007; Priority document of European, US and Canadian patent applications filed February 2008.) Joint venture between VTT Information Technologies, Helsinki, and Tyndall National Institute, Cork.
- [7] SE-0502939-2, *Polarisation state switch / Optisk polarisationstillstånds-switch*, F. Jonsson (Swedish Patent, filed December 2005).
- [8] US/20070104421, *Wavelength selective device*, A. Henriksson, F. Jonsson, S. Karlsson, U. Olin (US Patent, filed May 2007).
- [9] CA 2548175, *Dispositif selectif en longueurs d'onde / Wavelength selective device*, A. Henriksson, F. Jonsson, S. Karlsson, U. Olin (Canadian Patent, filed June 2006).
- [10] PCT/SE2004/001774, *Wavelength selective device*, A. Henriksson, F. Jonsson, S. Karlsson, U. Olin (International PCT Patent, filed November 2004).
- [11] US/60/481726, *Wavelength selective device*, A. Henriksson, F. Jonsson, S. Karlsson, U. Olin (US Provisional Patent, filed December 2003).
- [12] SE-0303223-2, *Wavelength selective device*, A. Henriksson, F. Jonsson, S. Karlsson, U. Olin (Swedish Patent application, filed December 2003, expired; Priority document of international application filed November 2004).
- [13] SE-0202160-8, *Wavelength selective switch* B. Sahlberg, A. Asseh, A. Henriksson, R. Stubbe, U. Öhlander, U. Olin, S. Karlsson, F. Jonsson, S. Helmfriid (Swedish Patent application, filed 2002, expired).

8. Peer-reviewed publications in scientific journals

- [1] J.-U. Schmidt, U. Dauderstaedt, P. Duerr, M. Friedrichs, T. Hughes, T. Ludewig, D. Rudloff, T. Schwaten, D. Trenkler, M. Wagner, I. Wullinger, A. Bergström, P. Björnängen, F. Jonsson, T. Karlin, P. Rönholm, and T. Sandström, *High-speed one-dimensional spatial light modulator for Laser Direct Imaging and other patterning applications*, Proc. SPIE **8977**, MOEMS and Miniaturized Systems XIII, 89770O (2014). DOI: <http://dx.doi.org/10.1117/12.2036533>
- [2] S. Arpiainen, F. Jonsson, J. R. Dekker, G. Kocher, W. Khunsin, C. M. Sotomayor Torres, J. Ahopelto, *Site-Selective Self-Assembly of Colloidal Photonic Crystals*, Advanced Functional Materials **19**, 1247–1253 (2009). DOI: <http://dx.doi.org/10.1002/adfm.200801612>
- [3] A. I. Denisyuk, F. Jonsson, K. F. MacDonald, N. I. Zheludev, and F. J. García de Abajo, *Luminescence readout of nanoparticle phase state*, Applied Physics Letters **92**, 093112 (2008). DOI: <http://dx.doi.org/10.1063/1.2890483>
- [4] M. V. Bashevoy, F. Jonsson, K. F. MacDonald, Y. Chen, and N. I. Zheludev, *Hyperspectral imaging of plasmonic nanostructures with nanoscale resolution*, Optics Express **15**, 11313–11320 (2007). DOI: <http://dx.doi.org/10.1364/oe.15.011313>
- [5] Bruno F. Soares, Fredrik Jonsson and Nikolay I. Zheludev, *All-optical phase-change memory in a single gallium nanoparticle*, Physical Review Letters **98**, 153905 (2007). *This article was selected as an Editors' Suggestion by the editorial board of the Physical Review*

Letters, and has been featured by Nature Nanotechnology as well as Physical Review Focus. DOI: <http://dx.doi.org/10.1103/PhysRevLett.98.153905>

- [6] G. Kocher, W. Khunsin, S. Arpiainen, J. Romero-Vivas, S. G. Romanov, J. Ye, B. Lange, F. Jonsson, R. Zentel, J. Ahopelto and C. M. Sotomayor Torres, *Towards Si-based photonic circuits: Integrating photonic crystals in silicon-on-insulator platforms*, Solid State Electronics **51**, 333–336 (2007). DOI: <http://dx.doi.org/10.1016/j.sse.2007.01.010>
- [7] Fredrik Jonsson and Christos Flytzanis, *Photospin-Orbit Coupling in Photonic Structures*, Physical Review Letters **97**, 193903 (2006). DOI: <http://dx.doi.org/10.1103/PhysRevLett.97.193903>
- [8] B. F. Soares, M. V. Bashevoy, F. Jonsson, K. F. MacDonald and N. I. Zheludev, *Polymorphic nanoparticles as all-optical memory elements*, Optics Express **14**, 10652–10656 (2006). DOI: <http://dx.doi.org/10.1364/oe.14.010652>
- [9] M. V. Bashevoy, F. Jonsson, A. V. Krasavin, N. I. Zheludev, Y. Chen and M. I. Stockman, *Generation of Traveling Surface Plasmon Waves by Free-Electron Impact*, Nano Letters **6**, 1113–1115 (2006). DOI: <http://dx.doi.org/10.1021/nl060941v>
- [10] J. Ye, R. Zentel, S. Arpiainen, J. Ahopelto, F. Jonsson, S. G. Romanov and C. M. Sotomayor Torres, *Integration of self-assembled three-dimensional photonic crystals onto structured silicon wafer*, Langmuir **22**, 7378–7383 (2006). DOI: <http://dx.doi.org/10.1021/la0607611>
- [11] Fredrik Jonsson and Christos Flytzanis, *Optical parametric interactions in distributed magneto-optical Bragg gratings*, Journal of Nonlinear Optical Physics and Materials **15**, 113–139 (2006). DOI: <http://dx.doi.org/10.1142/S0218863506003177>
- [12] Fredrik Jonsson and Christos Flytzanis, *Nonlinear magneto-optical Bragg gratings*, Physical Review Letters **96**, 063902 (2006). DOI: <http://dx.doi.org/10.1103/PhysRevLett.96.063902>
- [13] Fredrik Jonsson and Christos Flytzanis, *Spectral windowing using chirped magneto-optical Bragg gratings*, Journal of the Optical Society of America B, **22**, 293–298 (2005). DOI: <http://dx.doi.org/10.1364/josab.22.000293>
- [14] K. Varis, M. Mattila, S. Arpiainen, J. Ahopelto, F. Jonsson, C. M. Sotomayor Torres, M. Egen, and R. Zentel, *Reflection of focused beams from opal photonic crystals*, Optics Express **13**, 2653–2667 (2005). DOI: <http://dx.doi.org/10.1364/opex.13.002653>
- [15] F. Jonsson, C. M. Sotomayor Torres, J. Seekamp, M. Schniedergers, A. Tiedemann, J. Ye, and R. Zentel, *Artificially inscribed defects in opal photonic crystals*, Microelectronic Engineering **78**, 429–435 (2005). DOI: <http://dx.doi.org/10.1016/j.mee.2004.12.054>
- [16] Fredrik Jonsson and Christos Flytzanis, *Artificially induced perturbations in chirped magneto-optical Bragg gratings*, in *Magneto-Optical Materials for Photonics and Recording*, edited by Koji Ando, William Challener, Richard Gambino, and Miguel Levy (Mater. Res. Soc. Symp. Proc. 834, Warrendale, PA, 2005), J1.8. URL: <http://lucy.mrs.org/publications/epubs/>
- [17] Fredrik Jonsson and Christos Flytzanis, *Optical amplitude and phase evolution in nonlinear magneto-optical Bragg gratings*, Invited paper in Journal of Nonlinear Optical Physics and Materials **13**, 129–154 (2004). DOI: <http://dx.doi.org/10.1142/S0218863504001803>
- [18] Michaël Haddad, Fredrik Jonsson, Robert Frey, and Christos Flytzanis, *Nonlinear optical gyrotropy*, Nonlinear Optics **23**, 251 (2001).
- [19] Fredrik Jonsson and Christos Flytzanis, *Polarization state dependence of optical parametric processes in artificially gyrotropic media*, Journal of Optics A: Pure and Applied Optics **2**, 299–302 (2000). DOI: <http://dx.doi.org/10.1088/1464-4258/2/4/310>
- [20] Fredrik Jonsson and Christos Flytzanis, *Magneto-optic parametric oscillation*, Optics Letters **25**, 1249–1251 (2000). DOI: <http://dx.doi.org/10.1364/ol.25.001249>
- [21] Fredrik Jonsson and Christos Flytzanis, *Polarization state controlled multistability of a nonlinear magneto-optic cavity*, Physical Review Letters **82**, 1426–1429 (1999). DOI: <http://dx.doi.org/10.1103/PhysRevLett.82.1426>
- [22] Fredrik Jonsson and Christos Flytzanis, *Optical parametric generation and phase-matching in magneto-optic media*, Optics Letters **24**, 1514–1516 (1999).

DOI: <http://dx.doi.org/10.1364/ol.24.001514>

- [23] M. Haddad, P. Leishing, F. Jonsson, J. Cibert, R. Frey, and C. Flytzanis, *Photoinduced Faraday rotation in quantum wells of semimagnetic semiconductors (French title: Rotation Faraday photo-induite dans les puits quantiques des semi-conducteurs semi-magnétiques)*, *Annales de Physique Fr.* **23**, 189–190 (1998).

9. Talks

- [1] **[Invited]** F. Jonsson, *The energy principle in design of MEMS mirrors for lithography*, Invited talk at the 1:st Comsol Electromagnetics Simulations Seminar, Stockholm (June 11, 2014). <http://www.comsol.com/>
- [2] J.-U. Schmidt, U. Dauderstaedt, P. Duerr, M. Friedrichs, T. Hughes, T. Ludewig, D. Rudloff, T. Schwaten, D. Trenkler, M. Wagner, I. Wullinger, A. Bergström, P. Björnängen, F. Jonsson, T. Karlin, P. Rönholm, and T. Sandström, *High-speed one-dimensional spatial light modulator for Laser Direct Imaging and other patterning applications*, presented at the SPIE Conference on MOEMS and Miniaturized Systems XIII, San Francisco, California, United States (February 01, 2014). <http://www.spie.org/>
- [3] **[Invited]** G. Kocher, S. Arpiainen, W. Khunsin, J. Romero Vivas, K. Vynck, B. Lange, M. Mulot, F. Jonsson, J. Ye, S. G. Romanov, T. Charvolin, E. Hadji, D. Cassagne, R. Zentel, J. Ahopelto and C. M. Sotomayor Torres, *Integration of SOI-based waveguides, 2D- and Si-based 3D photonic crystals*, Invited talk at Workshop on Advances on Photonic Crystals, COST Action P11: Physics of Linear, Non-linear and Active Photonic Crystals, Capri, Italy, (September 28–30, 2007). <http://w3.uniroma1.it/energetica/>
- [4] **[Invited]** C. Flytzanis, F. Jonsson and R. Frey, *Gyrotropic photonic structures. Polarization state filtering and manipulation in photospintronics*, Invited talk at Advances in Nanophotonics II, hosted by the PhOREMOST European Network of Excellence, Istanbul, Turkey (September 13–15, 2007). <http://www.phoremmost.org/>
- [5] **[Invited]** M. Bashevoy, F. Jonsson and N. Zheludev, *Hyperspectral cathodo-luminescence imaging of plasmon excitations in metal nanostructures*, Invited talk to be presented at Optics and Photonics 2006 (Plasmonics: Nanoimaging, Nanofabrication, and their Applications III, OP214), The International Society for Optical Engineering (SPIE), San Diego, California, United States, (August 26–30, 2007). <http://spie.org/conferences/calls/07/op/>
- [6] A. I. Denisyuk, F. Jonsson, and N. I. Zheludev, *Optical size control in growth of gallium nanoparticles*, Oral presentation at OPC-2007 (8th International Congress on Optical Particle Characterization), Graz, Austria (July 9–13, 2007). <http://www.opc2007.at/>
- [7] **[Invited]** M. Bashevoy, F. Jonsson Y. Chen and N. Zheludev, *Hyperspectral imaging of plasmons with nanoscale resolution*, Invited talk to be presented at SPP3 (Third International Conference on Surface Plasmon Photonics), Dijon, France (June 17–22, 2007). <http://www.plasmonanodevices.org/spp3/>
- [8] M. Bashevoy, F. Jonsson and N. Zheludev, *Hyperspectral imaging of gold dimers*, Oral presentation at CLEO/Europe-IQEC, Talk CK5-5-TUE (Session of Photonic Crystals, Photonic Nanostructures and Integrated Optics), Munich, Germany (June 17-22, 2007). <http://www.cleoeurope.org/>
- [9] A. I. Denisyuk, F. Jonsson, and N. I. Zheludev, *Phase-change memory functionality in gallium nanoparticles*, Oral presentation at CLEO/Europe-IQEC, Talk CC4-4-THU (Session of Photorefractives and related materials), Munich, Germany (June 17-22, 2007). <http://www.cleoeurope.org/>
- [10] A. I. Denisyuk, F. Jonsson, and N. I. Zheludev, M. Bashevoy, F. Jonsson and N. Zheludev, *Hyperspectral imaging of plasmonic excitations induced by an electron beam*, Oral presentation at CLEO/QELS'2007, Talk QThE7 (Session of Plasmonics), Baltimore, United States (May 6-11, 2007). <http://www.cleoconference.org/>
- [11] **[Invited]** G. Kocher, W. Khunsin, J. Romero Vivas, K. Vynck, S. Arpiainen, S. G. Romanov, B. Langer, M. Mulot, F. Jonsson, T. Charvolin, E. Hajdi, D. Cassagne, R. Zentel, J. Ahopelto, C. M. Sotomayor Torres, *Integration of SOI-based 2D- and Si-based 3D photonic crystals*,

Invited talk at the 211th Meeting of the Electrochemical Society, Chicago, United States (May 6–11, 2007). <http://www.electrochem.org/meetings/biannual/211/211.htm>

- [12] **[Invited]** F. Jonsson, *Nanophotonics with the scanning electron microscope*, Invited talk at the 1st European Topical Meeting on Nanophotonics and Metamaterials, Seefeld, Austria (January 8–11, 2007). <http://www.nanometa.org/>
- [13] M. V. Bashevoy, F. Jonsson, N. I. Zheludev, and Y. Chen, *Generation of surface plasmons by electron beam excitation*, Oral presentation at the 1st European Topical Meeting on Nanophotonics and Metamaterials, Seefeld, Austria (January 8–11, 2007). <http://www.nanometa.org/>
- [14] **[Invited]** B. Soares, F. Jonsson, K. Macdonald and N. Zheludev, *All-optical phase-change memory in a single nanoparticle*, Invited talk at the 2nd Annual Workshop - Advances in Nanophotonics, hosted by the PhOREMOST European Network of Excellence, Vilnius, Lithuania (September 26–28, 2006). <http://www.phoremmost.org/>
- [15] B. F. Soares, F. Jonsson, and N. I. Zheludev, *All-optical Switch and Memory Element Based on a Single Nanoparticle*, Oral presentation at NFO-9 (9th International conference on near-field optics, nanophotonics and related techniques), Lausanne, Switzerland (September 10–15, 2006). <http://www.nfo9.org/>
- [16] M. V. Bashevoy, F. Jonsson, A. V. Krasavin, N. I. Zheludev, Y. Chen, and M. I. Stockman, *Generating Plasmon Waves by Electron Beam Excitation*, Oral presentation at NFO-9 (9th International conference on near-field optics, nanophotonics and related techniques), Lausanne, Switzerland (September 10–15, 2006). <http://www.nfo9.org/>
- [17] **[Postdeadline]** M. V. Bashevoy, F. Jonsson, A. V. Krasavin, N. I. Zheludev, Y. Chen, and M. I. Stockman, *Generation of Propagating Plasmonic Waves on Unstructured Gold Surface by an Electron Beam*, Postdeadline paper presented at CLEO/QELS-06 (Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science), Optical Society of America, Long Beach, California, United States (May 21–26, 2006). <http://www.cleoconference.org/>
- [18] B. F. Soares, M. V. Bashevoy, K. F. MacDonald, F. Jonsson, and N. I. Zheludev, *A nanoparticle as a bit of optical memory*, Oral presentation at QEP-17 (Conference on Quantum Electronics and Photonics), Institute of Physics, Manchester, United Kingdom (September 4–7, 2006). <http://www.photon06.org/>
- [19] B. F. Soares, F. Jonsson, K. F. MacDonald, A. I. Denisyuk, and N. I. Zheludev, *Dynamic structural equilibrium in self-assembled nanoparticles at the fiber tip: Probing with second harmonic generation*, Oral presentation at QEP-17 (Conference on Quantum Electronics and Photonics), Institute of Physics, Manchester, UK (September 4–7, 2006). <http://www.photon06.org/>
- [20] M. V. Bashevoy, F. J. García de Abajo, F. Jonsson, Y. Chen, and N. I. Zheludev, *New plasmon visualization technique in metal nano-structures based on the spectral mapping on the optical emission induced by an electron beam*, Oral presentation at QEP-17 (Conference on Quantum Electronics and Photonics), Institute of Physics, Manchester, United Kingdom (September 4–7, 2006). <http://www.photon06.org/>
- [21] M. Bashevoy, F. Jonsson, N. I. Zheludev, and F. J. García de Abajo, *Visualization of plasmons in metallic nanostructures using cathodo-luminescence*, Oral presentation 6323-07 at Optics and Photonics 2006 (Session on Plasmonics: Metallic Nanostructures and their Optical Properties IV, NP204), The International Society for Optical Engineering (SPIE), San Diego, California, United States, (August 13–17, 2006). <http://spie.org/conferences/programs/06/op/>
- [22] **[Invited]** G. Kocher, W. Khunsin, S. G. Romanov, F. Jonsson, C. M. Sotomayor Torres, K. Vynck, D. Cassagne, R. Zentel, S. Arpiainen, J. Ahopelto, and B. Langer, *2D photonic defect layers in 3D inverted silicon opals on a Si platform*, Invited talk at the 8th International Conference on Transparent Optical Networks, Nottingham, United Kingdom, (June 18–22, 2006). <http://www.itl.waw.pl/konf/icton/2006/invited.html>
- [23] **[Invited]** K. F. MacDonald, M. V. Bashevoy, A. I. Denisyuk, F. Jonsson, B. F. Soares, and N. I. Zheludev, *Nanophotonics Under a Scanning Electron Microscope: Studying Resonatorless All-Optical Switching and Memory Functionality in Gallium Nanoparticles*, Invited talk QTuJ2 at CLEO/QELS-06 (Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science), Optical Society of America, Long Beach, California, United States (May 21–26, 2006). <http://www.cleoconference.org/>

- [24] B. F. Soares, M. V. Bashevoy, K. F. MacDonald, F. Jonsson and N. I. Zheludev, *Nanoparticle optical memory function*, Oral presentation May 10, 16:00, at NSTI Nanotech 2006 (Nano Science and Technology Institute, Session on Nano Photonics), Hynes Convention Center, Boston, Massachusetts (May 7–11, 2006). <http://www.nsti.org/Nanotech2006/>
- [25] B. F. Soares, M. Bashevoy, K. F. MacDonald, F. Jonsson, and N. I. Zheludev, *Resonator-Less Optical Memory in Nanoparticles*, Oral presentation NThB3 at IPRA/Nano-2006 (Integrated Photonics Research and Applications Topical Meeting, joint with Nanophotonics Topical Meeting), Optical Society of America, (Session NThB-Plasmonics and Metamaterials I), Uncasville, Connecticut, United States (April 24–28, 2006). http://www.osa.org/meetings/topicals/IPR_NP/
- [26] J. Ye, R. Zentel, S. Arpiainen, J. Ahopelto, F. Jonsson, S. G. Romanov, and C. M. Sotomayor Torres, *Crystallization of silica opals onto patterned silicon wafer*, Oral presentation 6182-57 (Session 12) at Photonics Europe (SPIE), Strasbourg, France (April 3–7, 2006). <http://www.spie.org/Conferences/Calls/06/epe/>
- [27] G. Kocher, F. Jonsson, S. Arpiainen, J. Romero-Vivas, S. G. Romanov, J. Ye, R. Zentel, J. Ahopelto, and C. M. Sotomayor Torres, *Towards Si-based photonic circuits: integrating photonic crystals in SOI platforms*, Oral presentation at EUROSIOI-2006 (Second Workshop of the Thematic Network on Silicon on Insulator technology, devices and circuits), Session 5–Advanced SOI Structures, Grenoble, France (March 8–10, 2006). <http://grenoble2006.eurosoi.org/>
- [28] **[Invited]** F. Jonsson, J. Romero-Vivas, S. G. Romanov, C. M. Sotomayor Torres, S. Arpiainen, J. Ahopelto, J. Ye, and R. Zentel, *Towards Si-based photonic circuits: integrating photonic crystals in Si platforms*, Invited talk at ICTON-2005 (7th International Conference on Transparent Optical Networks and European Symposium on Photonic Crystals), Barcelona, Catalonia, Spain (July 3–7, 2005). Published in *Proceedings of the 7th International Conference on Transparent Optical Networks* **1**, 129 (2005). ISBN: 0-7803-9236-1. <http://icton.ccaba.upc.edu/icton/>
- [29] **[Invited]** F. Jonsson, J. Ye, S. Arpiainen, R. Zentel, J. Ahopelto, and C. M. Sotomayor Torres, *3D Opal Photonic Crystals Grown on Patterned Silicon Platforms*, Invited talk at PECS-VI (International Symposium on Photonic and Electromagnetic Crystal Structures), Crete, Greece (June 19–24, 2005). <http://cmp.ameslab.gov/PECSVI/>
- [30] **[Invited]** C. Flytzanis, F. Jonsson, R. Frey, and R. André, *Nonlinear magneto-photonic microcavities and Bragg Gratings. Nonreciprocity and magnetic spin ordering*, Invited talk at NOMA '05 (7th Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications), Cetraro, Italy (May 29–June 4, 2005). <http://hal.archives-ouvertes.fr/hal-00116303/fr/>
- [31] **[Invited]** S. G. Romanov, F. Jonsson, C. M. Sotomayor-Torres, and D. N. Chigrin, *Light emission in 3D opal-based photonic crystals*, Invited talk 5825-12 at Opto Ireland (International Symposium on Photonic and Electromagnetic Crystal Structures), The International Society for Optical Engineering (SPIE), Dublin, Ireland (April 4–6, 2005). <http://www.spie.org/Conferences/Programs/05/ire/>
- [32] F. Jonsson and C. Flytzanis, *Artificially induced perturbations in chirped magneto-optical Bragg gratings*, Oral presentation J1.8 at the 2004 Materials Research Society (MRS) Fall Meeting, Boston, United States (November 29–December 3, 2004). <http://www.mrs.org/>
- [33] F. Jonsson, C. M. Sotomayor Torres, J. Seekamp, M. Schniedergers, A. Tiedemann, J. Ye, and R. Zentel, *Artificially inscribed defects in opal photonic crystals*, Oral presentation PS-4 at MNE-2004 (Micro- and NanoElectronics Conference), Rotterdam, The Netherlands (September 19–22, 2004). <http://www.mne04.org/>
- [34] **[Invited]** F. Jonsson and C. Flytzanis, *Magneto-photonic crystal tuneable filters*, Invited talk at Nanoelectronics and Photonics Systems Workshop, Tarragona, Spain (June 20–22, 2004).
- [35] **[Invited]** P. Ferrand, F. Jonsson, J. Seekamp, V. Soloviev, S. G. Romanov, C. M. Sotomayor Torres, J. Ahopelto, M. Egen, and R. Zentel, *Towards Silicon-compatible 2D and 3D photonic crystals*, Invited talk CTuDD4, Session 6: Optical Materials, Fabrication and Characteriza-

tion, at *CLEO/IQEC 2004* (Conference on Lasers and Electro Optics/International Quantum Electronics Conference), San Francisco, United States May 16–21, 2004).

- [36] **[Invited]** C. Flytzanis, R. Frey, F. Jonsson, R. André, *Réseaux et microcavités magnétophotoniques non-linéaires, photo-spintronique*, Invited talk at OGP-8 (Optique Guidée et Photonique VIII), Montréal, Canada (May 12–14, 2004).
<http://opt-fibres.phys.polymtl.ca/ogp8/programme.html>
- [37] F. Jonsson, P. Ferrand, J. Seekamp, S. G. Romanov, C. M. Sotomayor Torres, J. Ahopelto, M. Egen, and R. Zentel, *Functionalized photonic crystals from opals*, Oral presentation Mo-C5 at PECS-V (International symposium on Photonic and Electromagnetic Crystal Structures V), Kyoto, Japan (March 7–11, 2004).
- [38] F. Jonsson, P. Ferrand, J. Seekamp, S. G. Romanov, C. M. Sotomayor Torres, M. Egen, and R. Zentel, *Functionalized photonic crystals from opals*, Oral presentation HL 15.10 at the Spring Meeting of the German Physical Society, Regensburg, Germany (March 8–12, 2004).
- [39] **[Invited]** C. Flytzanis, R. Frey, and F. Jonsson, *Magnetophotonic microcavities and gratings. Nonlinear interactions and photo-spintronics*, Invited talk at *Recent trends in nonlinear optics and ultra-short pulse generation*, International Workshop, Pavia, Italy (June 15–16, 2003).
- [40] C. Flytzanis, R. Frey, and F. Jonsson, *Magnetophotonic Microcavities and Gratings. Nonlinear Interactions and Photoinduced Spin Organization*, Oral talk Mo-9 at Carrier Interactions and Spintronics in Nanostructures, NTT Atsugi Research and Development Center, Japan (March 10–12, 2003).
- [41] F. Jonsson and C. Flytzanis, *Theoretical model for magneto-optical Bragg gratings*, Oral presentation O4.7 at the 2002 Materials Research Society (MRS) Fall Meeting, Boston, United States (December 2–6, 2002). <http://www.mrs.org/>
- [42] **[Invited]** F. Jonsson, *Theory and applications of nonlinear magneto-optics*, Invited talk at Physics Seminar Series at Chalmers University of Technology, Gothenburg, Sweden (February 12, 2002).
- [43] **[Invited]** F. Jonsson and C. Flytzanis, *Electromagnetic nonreciprocity applied to optical switching and amplification*, Invited talk at the Quantum Electronics and Photonics 15 (QEP-15) conference, Glasgow, Scotland (September 4–6, 2001).
- [44] R. Frey, R. André, F. Jonsson, and C. Flytzanis, *Nonlinear quantum magneto-optic microcavities and photoinduced spin dynamics*, Oral presentation at *NOMA '01* (5th Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications), Certraro, Italy (May 20–26, 2001).
- [45] F. Jonsson and C. Flytzanis, *Optical parametric oscillation in magneto-optic media*, Oral presentation at PELS-2000 (Polarisation Effects in Lasers, Spectroscopy and Optoelectronics), Interdisciplinary International Conference, Southampton, United Kingdom (September 6–9, 2000), satellite conference of CLEO/IQEC Europe 2000.
- [46] **[Invited]** R. Frey, M. Haddad, F. Jonsson, and C. Flytzanis, *Photoinduced gyrotropy and non-reciprocity in magneto-optic cavities*, Invited talk at *PELS-2000* (Polarisation Effects in Lasers, Spectroscopy and Optoelectronics), Interdisciplinary International Conference, Southampton, United Kingdom (September 6–9, 2000), satellite conference of CLEO/IQEC Europe 2000.
- [47] F. Jonsson and C. Flytzanis, *Nonlinear magneto-optics applied to optical bistability and parametric amplification*, presented at Northern Optics 2000 and EOSAM 2000 (Annual Meeting of the European Optical Society), Uppsala, Sweden (June 6–8, 2000).
- [48] F. Jonsson, M. Haddad, R. Frey, and C. Flytzanis, *Polarization state sensitive nonlinear effects in optical active and chiral molecular systems*, Oral presentation at *ICONO'5* (5th International Conference on Organic Nonlinear Optics), Davos, Switzerland (March 12–16, 2000).
- [49] F. Jonsson and C. Flytzanis, *Phase matching for optical parametric processes in artificially gyrotropic media*, Oral presentation at *Workshop on Applications of Nonlinear Optical Phenomena and Related Industrial Perspectives* (Conference joint with 2nd Annual Meeting of the COST Action P2) Amalfi, Italy (October 6–9, 1999).

- [50] F. Jonsson, M. Haddad, R. Frey, and C. Flytzanis, *Nonlinear magneto-optical cavities*, Oral presentation at International Workshop on Nonlinear Magneto-Optics, Cardiff, United Kingdom (June 24–26, 1999).
- [51] M. Haddad, F. Jonsson, R. Frey, and C. Flytzanis, *Nonlinear optical gyrotropy and nonreciprocity*, Oral presentation at *NOMA* (4th Mediterranean Workshop on Novel Optical Materials) Certraro, Italy (June 4–10, 1999).
- [52] M. Haddad, F. Jonsson, R. Frey, and C. Flytzanis, *Nonlinear optical gyrotropy*, Oral presentation at *QELS'99* (Quantum Electronics and Laser Science Conference) Baltimore, United States (May 23–28, 1999).
- [53] F. Jonsson, *Polymers in optical interconnects*, Oral presentation at the summer school *Advanced Topics in Modern Optics*, Krogerup, Denmark, (May 2–8, 1996).

10. Poster presentations

- [1] A. I. Denisyuk, F. Jonsson, and N. I. Zheludev, *Phase-change memory functionality in gallium nanoparticles*, Poster presentation at OPC-2007 (8th International Congress on Optical Particle Characterization), Graz, Austria (July 9–13, 2007). <http://www.opc2007.at/>
- [2] M. V. Bashevoy, F. Jonsson, Y. Chen and N. I. Zheludev, *Generation of plasmon waves by electron beam impact*, Poster presentation at the 2nd Annual Workshop - Advances in Nanophotonics, hosted by the PhOREMOST European Network of Excellence, Vilnius, Lithuania (September 26–28, 2006). <http://www.phoremmost.org/>
- [3] K. F. MacDonald, A. V. Krasavin, B. F. Soares, M. V. Bashevoy, F. Jonsson, and N. I. Zheludev, *Nonlinear plasmonics in a gallium/aluminium nano-composite*, Poster presentation P2.14 at QEP-17 (Conference on Quantum Electronics and Photonics), Institute of Physics, Manchester, United Kingdom (September 4–7, 2006). <http://www.photon06.org/>
- [4] B. F. Soares, F. Jonsson, K. F. MacDonald, A. I. Denisyuk, and N. I. Zheludev, *Nonlinear optical interactions in mixed states of metal nano-particles undergoing structural transformation*, Poster presentation 6323-71 at Optics and Photonics 2006 (Session on Plasmonics: Metallic Nanostructures and their Optical Properties IV, NP204), The International Society for Optical Engineering (SPIE), San Diego, California, United States, (August 13–17, 2006). <http://spie.org/conferences/programs/06/op/>
- [5] G. Kocher, W. Khunsin, K. Vynck, S. Arpiaainen, S. Romanov, B. Lange, F. Jonsson, D. Cas-sagne, R. Zentel, J. Ahopelto, and C. M. Sotomayor Torres, *2D photonic components in 3D inverted opals on Si*, Poster presentation FrM2n.23 at ICPS-2006 (28th International Conference on the Physics of Semiconductors), Vienna, Austria (July 24–28, 2006). <http://www.icps2006.at/>
- [6] F. Jonsson, C. M. Sotomayor Torres, and J. Seekamp, *Fabrication and simulation of individual site defects in opals*, Poster presentation at PECS-VI (International Symposium on Photonic and Electromagnetic Crystal Structures), Crete, Greece (June 19–24, 2005). <http://cmp.ameslab.gov/PECSVI/>
- [7] F. Jonsson and C. Flytzanis, *Magneto-photonic crystal tunable filters*, Poster presentation at ETOS-2004 (Emerging Technologies in Optical Sciences), University College Cork, Republic of Ireland (July 26–29, 2004). <http://www.physics.ucc.ie/ETOS/>

11. Miscellaneous publications in optical physics

- [1] Fredrik Jonsson, *Lecture Notes on Nonlinear Optics*, (Transactions of the Royal Institute of Technology, Stockholm, 2003, 168 pages), ISBN 91-7283-517-6. Electronically available via the National Library of Sweden (Kungl Biblioteket) or at <http://jonsson.eu>. URL: <http://swepub.kb.se/bib/swepub:oai:diva.org:kth-9154>
- [2] Fredrik Jonsson, *The Nonlinear Optics of Magneto-Optic Media*, Doctoral Thesis (Royal Institute of Technology, Stockholm, 2000), ISBN 91-7170-575-9. Electronically available via the National Library of Sweden (Kungl Biblioteket). URL: <http://swepub.kb.se/bib/swepub:oai:diva.org:kth-2967>

- [3] Fredrik Jonsson, *An investigation of future research areas in visual optics*, technical report TRITA-FYS 2163, ISSN 0280-316X (Transactions of the Royal Institute of Technology, Stockholm, 1997). This report summarizes a study on the possible future evolution of ophthalmic intraocular lenses and the current possibilities of obtaining accommodating intraocular lenses.
- [4] Peter Henriksson, Fredrik Jonsson, and Gunnar Arvidsson, *Low-cost polymer waveguides*, in Research in Optics (Institute of Optical Research, Stockholm, 1995), TR 305, ISSN 0281-1804.
- [5] Fredrik Jonsson, *Neural networks for modelling of the NCS space* (Swedish: *Neurala nät för modellering av NCS-rymden*), Färgnotiser **40**, 27, 1995. Summary of my research on colour perception and computer cognition, performed together with Gunnar Tonnquist 1994–1995 for the Swedish Colour Foundation.

12. Extracurriculum vitæ

Decent player of the alto-guitar (an eight-stringed classical-style guitar tuned in G, in the scheme of the Renaissance lute).

Regular sea-kayaker, any time of the year, and instructor of eskimo-rolling techniques.

President of Housing Cooperative Kumlet 20 (*Ordförande för Bostadsrättsföreningen Kumlet 20*), Grevgatan 49, Stockholm, during 2001–2008 and 2009–2014.