MARKO LONČAR

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Career History

Assistant Professor of Electrical Engineering — Jul. 1st, 2006 – present
Harvard University

Postdoctoral Scholar in Applied Physics — Oct. 1st, 2003 – Jun. 31st, 2006
Harvard University (F. Capasso Group)

Education

Ph.D. in Electrical Engineering, **California Institute of Technology** — 1998-2003
Thesis "Nanophotonics devices based on planar photonic crystals". Adviser: Axel Scherer

M.S. in Electrical Engineering, **California Institute of Technology** — 1997-1998
Power electronics group. Adviser: Slobodan Ćuk

Diploma in Electrical Engineering, **University of Belgrade** (R. Serbia) — 1992-1997

Awards

- **Alfred P. Sloan Research Fellowship** — 02/16/2010
- **NSF CAREER Award** — 2/1/2009 – 1/31/2014
- **Outstanding Performer Award,** DARPA University Optocenters — September 18, 2003
- **Graduate Student Silver Award,** Material Research Society, Fall Meeting, Boston, MA — December 2, 2002.
- **C. Powel Fellowship**, California Institute of Technology — 1997 – 1998
- **Valedictorian** Faculty of Electrical Engineering, University of Belgrade (Republic of Serbia) (the class of approximately 600 students) — 1997
- **Fellowship from the Foundation for Development of Science and Art** (Republic of Serbia) — 1990 – 1997

Research Interests

Nanophotonics and Optoelectronics, including photonic crystals, silicon photonics, intra-cavity nonlinear optics and nanolasers; Applications of nanophotonics in datacom, quantum information processing and life sciences.

Nanoscale Optomechanics and reconfigurable optical devices

Nanofabrication

Professional Activities and Services

Conference Chair: SPIE Photonics West (2010-)
Program Committees: SPIE Optics East (2004-2006), SPIE Photonics West (2009), OSA International Conference on Nanophotonics (2009-), ISCS/IPRM (2010), IEEE LEOS Annual Meeting (2009-).

Participant in NSF panels and workshops.

Referee for Nature Photonics, Physical Review Letters, Nanoletters, Optics Letters, Applied Physics Letters, Journal of Applied Physics, IEEE Journal of Quantum Electronics, Optics Express, etc.

Member of Optical Society of America, IEEE, SPIE and Materials Research Society

Harvard SEAS committees: EE Task Force (E. Hu, V. Tarokh, 2009), Graduate students admission (2006-2009), Safety committee (2006-present), Faculty search committees: design (R. Howe, 2008), energy sci. & tech. (M. Aziz, 2009)

Collaborators: Harvard: Joanna Aizenberg, Mikhail Lukin, Amir Yacoby, Hongkun Park, Michael Aziz, Venky Narayanamurti, Eric Mazur, Federico Capasso; *Texas A&M:* Phillip Hemmer; *Georgia Tech:* Russell Dupuis; *Bilkent University (Turkey)*: Ekmel Ozbay; *University of Stuttgart (Germany):* Fedor Jelezko and Jorg Wrachtrup;

Teaching & Education

Harvard SEAS courses: *ES 50 Introduction to electrical engineering* (undergrad, 2008-), *ES 273 Optics and Photonics* (grad, 2007-), *Biophysics 242r Special Topics in Biophysics* (grad, 2008).

Harvard Extension School: *ENSC E-162 Nanoscale Optics with Applications in Biotechnology (2009)*; *ENSC E-125 Introduction to Nanoscience* (2010, together with F. Habbal).

Freshman adviser for Harvard College (2007-2009). Advised total of 5 students.

NSF Research Experience for Undergrads (REU) and Teachers (RET) programs: Advised 5 REUs and 1 RET;
Harvard's PRISE program: Advised 2 students;

Currently advising 9 graduate students, 2 undergraduate student, 1 international visiting student and 3 postdocs.

Member of 13 PhD qualifying committees, and 3 final PhD exams.

Patents

US patent No. **6,466,709**: "Photonic crystal microcavities for strong coupling between an atom and the cavity field and method of fabricating the same", A. Scherer, J. Vučković, M. Lončar and H. Mabuchi.

US patent No. **6,468,823**: "Fabrication of optical devices based on two dimensional photonic crystal structures and apparatus made therby", A. Scherer, M. Lončar, T. Doll.

US patent No. **6,534,798**: "Surface plasmon enhanced LED and the method of operation of the same", A. Scherer, J.

Vučković and M. Lončar.

US patent No. **6,944,384**: "Methods for controlling positions of guided modes of the photonic crystal waveguides", M. Lončar, J. Vučković and A. Scherer.

US patent No. **7,079,240**: "Photonic Crystal Laser Sources for Chemical Detection", M. Lončar and A. Scherer.

Book Chapters

M. Lončar and A. Scherer, "Microfabricated optical cavities and photonic crystals", *in Optical Microcavities*, edited by K. Vahala, World Scientific, 2004.

Journal Publications

1. T.M. Babinec, B.M. Hausmann, M. Khan, Y. Zhang, J. Maze, P.R. Hemmer, M. Lončar, "A bright single photon source based on a diamond nanowire," *Nature Nanotechnology* **(cover page)**, doi:10.1038/nnano.2010.6
2. B.M. Hausmann, M. Khan, T.M. Babinec, Y. Zhang, K. Martinick, M.W. McCutcheon, P.R. Hemmer, M. Lončar, "Fabrication of diamond nanowires for quantum information processing applications," *Diamond and Related Materials*, doi:10.1016/j.diamond.2010.01.011
3. M. W. McCutcheon, D. E. Chang, Y. Zhang, M.D. Lukin, and M. Lončar, "Broad-band spectral control of single photon sources using a nonlinear photonic crystal cavity," *Optics Express,* **17**, 22689 (2009)
4. D. Woolf, M. Lončar, and F. Capasso "The forces from coupled surface plasmon polaritons in planar waveguides," *Optics Express,* **17**, 19996 (2009)
5. D.J. Lipomi, F. Ilievski, B.J. Wiley, P.B. Deotare, M. Lončar, and G.M. Whitesides "Integrated Fabrication and Magnetic Positioning of Metallic and Polymeric Nanowires Embedded in Thin Epoxy Slabs," *ACS Nano*, **3**, 3315 (2009)
6. I.B. Burgess*, Y. Zhang*, M. W. McCutcheon*, A.W. Rodriguez, J. Bravo-Abad, S. G. Johnson, and M. Lončar "Design of an efficient terahertz generation in triply resonant nonlinear photonic crystal microcavities," *Optics Express*, **17**, 20099 (2009)
7. Y. Zhang, M.W. McCutcheon, I.B. Burgess, and M. Lončar, "Ultra-high-Q TE/TM dual-polarized photonic crystal nanocavities," *Optics Letters*, **34**, 2694 (2009)
   [also: September 28, 2009 issue of *Virtual Journal of Nanoscale Science & Technology*]
8. Q. Quan, I. Bulu, and M. Lončar, "Broadband waveguide QED system on a chip," *Physical Review A*, **80**, 011810(R) (2009) [Published as a Rapid Communication]
   [also: August 10, 2009 issue of the *Virtual Journal of Nanoscale Science & Technology* and August 2009 issue of the *Virtual Journal of Quantum Information*]
9. P. B. Deotare, M. W. McCutcheon, I. W. Frank, M. Khan, and M. Lončar, "Coupled photonic crystal nanobeam cavities," *Applied Physics Letters*, **95**, 031102 (2009)
10. I.B. Burgess, A.W. Rodriguez, M. W. McCutcheon, J. Bravo-Abad, Y. Zhang, S. G. Johnson, and M. Lončar, "Difference-frequency generation with quantum-limited efficiency in triply-resonant nonlinear cavities," *Optics Express*, **17**, 9241 (2009)
11. P. B. Deotare, M. W. McCutcheon, I. W. Frank, M. Khan, and M. Lončar, "High Quality factor photonic crystal nanobeam cavities," *Applied Physics Letters*, **94**, 121106 (2009)
    [also: April 13, 2009 issue of the *Virtual Journal of Nanoscale Science and Technology*]
12. Y. Zhang and M. Lončar, "Sub-micron diameter micropillar cavities with high Quality factors and ultra-small mode volumes," *Optics Letters*, **34**, 902 (2009)
    [also: April 27, 2009 issue of the *Virtual Journal of Nanoscale Science and Technology*]
13. H. Caglayan, I. Bulu, M. Lončar, and E. Ozbay, "Experimental observation of sub-wavelength localization using metamaterial-based cavities," *Optics Letters*, **34**, 88 (2009)
14. H. Caglayan, I. Bulu, M. Lončar, E. Ozbay, "Cavity formation in split ring resonators", *Photonics and Nanostructures – Fundamentals and Applications*, **6**, 200 (2008)
15. M. W. McCutcheon, and M. Lončar, "Design of a silicon nitride photonic crystal nanocavity with a Quality factor of one million for coupling to a diamond nanocrystal", *Optics Express,* **16**, 19136 (2008)
16. Y. Zhang, and M. Lončar, "Ultra-high quality factor optical resonators based on semiconductor nanowires", *Optics Express,* **16**, 17400 (2008).
17. H. Caglayan, I. Bulu, M. Lončar, and E. Ozbay, "Observation of coupled cavity structures in metamaterials", *Appl. Phys. Lett*., **93**, 121910 (2008)
18. H. Caglayan, I. Bulu, M. Lončar, and E. Ozbay, "Experimental observation of cavity formation in composite metamaterials", *Optics Express,* **16,** 11132 (2008)
19. M. Lončar, "Cavities lead the way", **(News & Views)** *Nature Photonics*, **1**, 565 (2007)

Journal Publications (cntd.)

20. M. A. Belkin, M. Lončar, B. G. Lee, C. Pflugl, R. Audet, L. Diehl, F. Capasso, D. Bour, S. Corzine, and G. Hofler, "Intra-cavity absorption spectroscopy with narrow-ridge microfluidic quantum cascade lasers", *Optics Express*, **15**, 11262 (2007)
21. M. Lončar, B. G. Lee, L. Diehl, M. A. Belkin, F. Capasso, M. Giovannini, J. Faist, and E. Gini, "Design and fabrication of photonic crystal quantum cascade lasers for optofluidics", *Optics Express*, **15**, 4499 (2007)
22. L. Diehl, B. G. Lee, P. Behroozi, M. Lončar, M. Belkin, F. Capasso, T. Aellen, D. Hofstetter, M. Beck, and J. Faist, "Microfluidic tuning of distributed feedback quantum cascade lasers", *Optics Express*, **14**, 11660 (2006)
23. L. Diehl, D. Bour, S. Corzine, J. Zhu, G. Hofler, M. Lončar, M. Troccoli and F. Capasso "High-temperature continuous wave operation of strain-balanced quantum cascade lasers grown by metal organic vapor-phase epitaxy", *Appl. Phys. Lett.,* **89**, 081101 (2006)
24. L. Diehl, D. Bour, S. Corzine, J. Zhu, G. Hofler, M. Lončar, M. Troccoli and F. Capasso "High-power quantum cascade lasers grown by low-pressure metalorganic vapor-phase epitaxy operating in continuous wave above 400 K", *Appl. Phys. Lett.,* **88**, 201115 (2006)
25. C. J. Barrelet, J. M. Bao, M. Lončar, H. G. Park, F. Capasso and C. M. Lieber, "Hybrid single-nanowire photonic crystal and microresonator structures", *Nano Letters*, **6**, pp. 11-15 (2006).
26. M. Adams, G. A. DeRose, M. Lončar and A. Scherer, "Lithographically fabricated optical cavities for refractive index sensing", *J. Vac. Sci. Technol. B*, **23**, pp. 3168-3173 (2005).
27. M. L. Povinelli, M. Lončar, M. Ibanescu, E. J. Smythe, S. G. Johnson, F. Capasso and J. D. Joannopoulos, "Evenescent-wave bonding between optical waveguides", *Optics Letters,* **30**, pp. 3042 – 3044 (2005).
28. M. L. Povinelli, S. G. Johnson, M. Lončar, M. Ibanescu, E. J. Smythe, F. Capasso and J. D. Joannopoulos, "High-Q enhancement of attractive and repulsive optical forces between coupled whispering-gallery-mode resonators", *Optics Express*, **13**, pp. 8286 – 8295 (2005).
29. M. L. Adams, M. Lončar, A. Scherer and Y. Qiu, " Microfluidic integration of porous photonic crystals nanolasers for chemical sensing", *IEEE J. of Selected Areas in Communic.*, **23**, pp. 1348 -1354 (2005).
30. B. Maune, M. Lončar, J. Witzens, M. Hochberg, T. Baehr-Jones. D. Psaltis, A. Scherer and Y. Qiu, "Liquid-crystal electric tuning of a photonic crystal laser", *Appl. Phys. Lett.*, **85**, 360-362 (2004).
31. T. Yoshie, M. Lončar, A. Scherer and Y. Qiu, "High frequency oscillation in photonic crystal nanolasers", *Appl. Phys. Lett.*, **84**, pp. 3543-3545 (2004).
32. M. Lončar, M. Hochberg, A. Scherer and Y. Qiu, "High quality factors and room-temperature lasing in modified single-defect photonic crystal cavity", *Optics Lett..* **29**, pp. 721-723 (2004).
33. M. Lončar, T. Yoshie, K. Okamoto, Y. Qiu, J. Vučković and A. Scherer, "Planar photonic crystal nanolasers (I): porous cavity lasers", **(invited)** *IEICE Trans. Elect.,* **E87**, pp. 291-299 (2004).
34. J. Witzens, T. Baehr-Jones, M. Hochberg, M. Lončar and A. Scherer, "Photonic crystal waveguide-mode orthogonality conditions and computation of intrinsic waveguide losses", *JOSA A*, **10**, pp. 1963-1968 (2003).
35. M. Lončar, A.Scherer and Y. Qiu, "Photonic crystal laser sources for chemical detection", *Appl. Phys. Lett.*, **82**, pp. 4648-4650 (2003).
36. M. Lončar, A. Scherer and Y. Qiu, "Nanocavity Lasers Detect Chemicals", *Laser Focus World*, **39**, 89 (2003).
37. K. Okamoto, M. Lončar, T. Yoshie, A. Scherer, Y. Qiu and P. Gogna, "Near-field scanning optical microscopy of photonic crystal nanocavities", *Appl. Phys. Lett.*, **82**, pp. 1676-1678 (2003).
38. A. Scherer, T. Yoshie, M. Lončar, J. Vučković, K. Okamoto, D. Deppe, "Photonic crystal nanocavities for efficient light confinement and emission", **(invited)** *J. Korean. Phys. Soc.*, **42**, pp. S768-S773 (2003).
39. J. Witzens, M. Lončar and A. Scherer, "Self-collimation in planar photonic crystals", *IEEE J. Sel. Top. Quant. Elect.*, **8**, pp. 1246-1257 (2002).
40. M. Lončar, T. Yoshie, A. Scherer, P. Gogna and Y. Qiu, "Low-threshold photonic crystal laser", *Appl. Phys. Lett.,* **81** (15), pp. 2680-2682 (2002).
41. A. Scherer, O. Painter, J. Vučković, M. Lončar and T. Yoshie, "Photonic crystals for confining, guiding and emitting light", **(invited)** *IEEE Trans. on Nanotech.,* **1** (1), pp. 4-11 (2002).
42. J. Vučković, M. Lončar, H. Mabuchi and A. Scherer, "Optimization of Q-factors in micro-cavities based on free-standing membranes", *IEEE J. of Quant. Elect.*, **38** (7), pp. 850-856 (2002).
43. M. Lončar, D. Nedeljković, T. P. Pearsall, J. Vučković, A. Scherer, S. Kuchinsky, D. C. Allan, "Experimental and theoretical confirmation of Bloch-mode light propagation in planar photonic crystal waveguides", *Appl. Phys. Lett.*, **77** (13), pp. 1937-1939 (2002).
44. J. Vučković, M. Lončar, H. Mabuchi and A. Scherer, "Design of photonic crystal microcavities for cavity QED",

Journal Publications (cntd.)

Phys. Rev. E, **65**, 016608, (2002).

45. M. Lončar, J. Vučković and A. Scherer, "Methods for controlling positions of guided modes of photonic-crystal waveguides", *JOSA B*, **18** (9), pp. 1362-1368 (2001).
46. A. Adibi, Y. Xu, R. K. Lee, M. Lončar, A. Yariv, and A. Scherer, "Role of distributed Bragg reflection in photonic-crystal optical waveguides", *Phys. Rev. B.*, **64**, (4) pp. 1102 (2001).
47. H. Mabuchi, M. Armen, B. Lev, M. Lončar, J. Vučković, H.J. Kimble, J. Preskill, M. Roukes, A. Scherer, "Quantum networks based on cavity QED", *Quant. Info. and Comput.*, special issue on *Implementation of Quantum Computation*, **1**, pp. 7-12 (2001).
48. M. Lončar, D. Nedeljković, T. Doll, J. Vučković, A. Scherer and T. P. Pearsall, "Waveguiding in planar photonic crystals", *Appl. Phys. Lett.*, **77** (13), pp. 1937-1939 (2000).
49. M. Lončar, T. Doll, J. Vučković and A. Scherer, "Design and fabrication of silicon photonic crystal optical waveguides", *J. of Lightwave Tech.*, **18** (10), pp. 1402-1411 (2000).
50. J. Vučković, M. Lončar, and A. Scherer, "Surface plasmon enhanced light-emitting diode", *IEEE J. Quant. Elect.*, **36** (10), pp. 1131-1144 (2000).

Manuscript Submitted for Publication

51. I. W. Frank, P. B. Deotare, M. W. McCutcheon, M. Lončar, "Dynamically reconfigurable photonic crystal nanobeams cavities", *submitted to Optics Express,* arXiv:0909.2278
52. Y. Zhang, M. Khan, Y. Huang, J.H. Ryou, P.B. Deotare, R. Dupuis, M. Lončar, "Photonic crystal nanobeam lasers," *submitted to Applied Physics Letters (arXiv:1002.2380)*
53. Q. Quan, P.B. Deotare, M. Lončar, "Dynamically reconfigurable photonic crystal nanobeam cavities," *submitted to Applied Physics Letters (arXiv:0909.2278)*
54. M. Khan, T. M. Babinec, M. W. McCutcheon, P. B. Deotare, M. Lončar "High Quality Factor Silicon Nitride Nanobeam Cavities for Coupling to Diamond Nanocrystals", *submitted to Optics Letters*

Tutorials

1. M. Lončar, "Nanophotonics meets quantum optics", Summer School of the German Physical Society, Physikzentrum Bad Honnef, Germany, September 19-24 (2010)

Invited Conference Talks

1. M. Lončar *et al.*, "TBD", European Optical Society (EOS) Bi-annual General Meeting, Paris, France (October 26-28, 2010).
2. M. Lončar *et al.,* "Photonic crystal nanobeam cavities and lasers", 37th International Symposium on Compound Semiconductors (ISCS/IPRM), Takamatsu City, Japan (May 31- June 4, 2010).
3. M. Lončar *et al*., Optical Data Storage (SPIE Topical Meeting), University of Colorado, Boulder (May 24-26, 2010).
4. M. Lončar, P.B. Deotare, I.W. Frank, Y. Zhang, A. Conwill, M. Khan, M.W. McCutcheon, Q. Quan, "Photonic Crystal Nanobeam Cavities and Their Applications", CLEO 2010, San Jose, CA (May 16-21, 2010)
5. M. Lončar *et al.*, "TBD", Workshop on Nano-optics, Plasmonics, and Advanced Materials, NIST, Gaithersburg, MD (April 19-22, 2010).
6. M. Lončar *et al*., "TBD", 2nd International Workshop on FIB for Photonics/ 15th European Conference on Integrated Optics, Cambridge, UK (April 6-7, 2010).
7. M. Lončar *et al.*, "Reconfigurable optical filters and cavity QED with Photonic Crystal Nanobeam Cavities", SPIE Photonics West Conference, San Francisco, CA (January 23-28, 2010)
8. M. Lončar, *et al.* "Photonic Crystal Nanobeam Cavities for Reconfigurable Nanophotonics and Cavity QED", Asia Communications and Photonics Conference and Exhibition (ACP), Shanghai, China (November 2-6, 2009)
9. M. Lončar, "Reconfigurable Optical Filters Based on Photonic Crystal Nanobeam Cavities", IEICE Symposium on Si Photonics, University of Tokyo, Japan (November 18, 2009)
10. M. Lončar, "Optical Nanostructures for Advanced Communication Systems", Workshop on Nanophysics, RIKEN, Tokyo, Japan (November 12-17, 2009)
11. M. Lončar, "Nanophotonics and Applications in Optical and Quantum Information Processing", CMOS Emerging Technologies, Vancouver, Canada (September 23 – 25, 2009)
12. M. Lončar, P.B. Deotare, M.W. McCutcheon, M. Khan, Y. Zhang, I.W. Frank, T.M. Babinec, D.E. Chang, M.D. Lukin, "High-Q photonic crystal cavities and their applications", Integrated Photonics and Nanophotonics Research and Applications, Honolulu, Hawaii (12-17th July, 2009)
13. M. Lončar, "Nanophotonics Platform for Quantum Information Processing in Diamond," Frontiers in Nanoscale Science and Technology Workshop, Harvard University, MA (May 29-31, 2009)
14. M. Lončar, "Focused Ion Beam Milling for Nanophotonics, Optoelectronics and Quantum Optics", SPIE

Invited Conference Talks (cntd.)

Photonics West, San Jose, CA (January 2009).

15. M. Lončar, “Nanophotonics platform for quantum information processing in diamond”, SPIE Photonics West, San Jose, CA (January 2009).
16. M. Lončar, “Light-matter interaction in nanoscale optical devices”, SPIE ISOM/ODS, Waikoloa, Hawaii, 2008
17. M. Lončar, “Optomechanical interaction in nanophotonic devices”, PQE 38, Snowbird, UT, 2008
18. M. Lončar, “Waveguides and photonic structures in diamond”, Quantum Diamond, Lancefeld, Australia, 2007
19. M. Lončar, L. Diehl, B. G. Lee, F. Capasso, R. Parehia, O. Painter, M. Giovannini and J. Faist, “Optofluidic QCL Platform: On-chip sensing and widely tunable lasers”, SPIE Optics and Photonics, San Diego, August 14,, 2006.
20. M. Lončar, S. K. Tang, M. Troccoli and F. Capasso, “Optofluidic mid-infrared laser platform based on holey quantum cascade lasers“, SPIE Optics East, Boston, MA October 23-26, 2005.
21. M. Lončar, M. L. Adams and A. Scherer, “Chemical sensors based on photonic crystal nanolasers”, SPIE Optics East, Philadelphia, PA, October 25-28, 2004.
22. M. Lončar, T. Yoshie, A. Scherer, P. Gogna and Y. Qiu, “Low-threshold triangular lattice photonic crystal laser based on high-Q cavity designs”, Materials Research Society (MRS) Fall Meeting, Boston, MA, Dec. 2-6 2002.
23. M. Lončar, T. Yoshie, J. Vučković, A. Scherer, H. Chen, D. Deppe, P. Gogna, Y. Qiu, D. Nedeljković, and T. P. Pearsall, “Nanophotonics based on Planar Photonic Crystals”, presented at IEEE Lasers and Electro-Optics Society Annual Meeting, Glasgow, Scotland, Nov. 10-14 2002.
24. M. Lončar, T. Yoshie, A. Scherer, P. Gogna and Y. Qiu, “Low-threshold photonic crystal laser”, Photonic and Electromagnetic Crystal Structures (PECS IV) workshop, Los Angeles, CA, Oct. 28-31 2002.
25. M. Lončar, J. Vučković, T. Yoshie, O. Painter and A. Scherer, “Photonic crystals and their applications to efficient light emitters”, Microoptics Conference, Osaka, Japan, Oct. 24-26 2001.

Conference Presentations by Group Members (since 2006)

1. I.W. Frank, *et al.,* "Dynamically reconfigurable nanobeam photonic crystal cavitie," SPIE Photonics West, OPTO: Photonic and Phononic Crystal Materials and Devices IX, San Francisco, California (January 26, 2010)
2. M. Khan, *et al.*, "1D Si3N4 nanobeam cavities," SPIE Photonics West, OPTO: Photonic and Phononic Crystal Materials and Devices IX, San Francisco, California (January 26, 2010).
3. T. M. Babinec *et al*., MRS Fall Meeting, Boston (December 2009)
4. B. M. Hausmann, *et al*., “Fabrication of Diamond Nanostructures for Quantum Information Processing Applications”, MRS Fall Meeting, Boston (December 2009)
5. D.N. Woolf, M. Lončar, and F. Capasso, "Optomechanics with surface plasmons: attractive and repulsive forces between planar metal surfaces," SPIE Optics and Photonics, San Diego, CA (August 4, 2009)
6. I.B. Burgess, M.W. McCutcheon, A.W. Rodriguez, J. Bravo-Abad, Y. Zhang, S.G. Johnson, and M. Lončar, "Efficient Difference Frequency Generation in Triply Resonant Nonlinear Cavities," OSA Nonlinear Optics Topical Meeting, Honolulu, Hawaii (July 12-17th, 2009)
7. T.M. Babinec, B. Hausmann, M. Khan, K. Martinick, M.W. McCutcheon, P. Hemmer, and M. Lončar, "Fabrication and Characterization of Diamond Nanowires with Embedded Nitrogen Vacancy Color Centers for Nanophotonic Devices," New Diamond and Nano Carbons Conference, Traverse City, MI (June 10, 2009)
8. Y. Zhang, M.W. McCutcheon, and M. Lončar, "High Quality Factor Photonic Crystal Nanocavities in 'Impossible Scenarios': Dual-Polarization, Low-Index Materials and Air-Band Modes," CLEO/IQEC, Baltimore, MD (65, 2009)
9. P.B. Deotare and M. Lončar, "High Quality Factor 1D Photonic Crystal Cavities in Silicon," CLEO/IQEC, Baltimore, MD (June 5, 2009)
10. T.M. Babinec, B. Hausmann, M. Khan, K. Martinick, M.W. McCutcheon, P. Hemmer, and M. Lončar, "A Single Photon Source Based on Diamond Nanowires," CLEO/IQEC, Baltimore, MD (June 4, 2009) **[post-deadline]**
11. M.W. McCutcheon, D.E. Chang, Y. Zhang, M.D. Lukin and, M. Lončar, "Frequency Conversion of Spontaneously Emitted Photons in a Nonlinear Photonic Crystal Nanocavity," CLEO/IQEC, Baltimore, MD (June 1st, 2009) **[invited]**
12. Y. Zhang and M. Lončar, "Submicron Diameter Micropillar Cavities with High Quality Factor and Ultra-Small Mode Volume," CLEO/IQEC, Baltimore, MD (June 3, 2009)
13. Y. Zhang, M. S. Bradley, J. R. Tischler, V. Bulovic, and M. Lončar, "Nanocavity-induced strong coupling in J-aggregate" PECS VIII (153), Sydney, Australia (April 7, 2009) **[poster] [PRIZE: 2nd best poster]**
14. Y. Zhang, M.W. McCutcheon, and M. Lončar, "High quality factor photonic crystal nanocavities in ‘impossible scenarios’," PECS VIII (53), Sydney, Australia (April 6, 2009) **[poster]**
15. M.W. McCutcheon and M. Lončar, "Ultra-high Q/V double mode photonic crystal nanocavity for nonlinear

Conference Presentations by Group Members (cntd.)

frequency conversion," PECS VIII, Sydney, Australia (April 6, 2009)

16. P.B. Deotare and M. Lončar, "Coupled High Quality Factor 1D Photonic Crystal Cavities," PECS VIII, Sydney, Australia (April 6, 2009) **[poster]**
17. M.W. McCutcheon, and M. Lončar, "High Q/V photonic crystal nanocavity design in low refractive index materials," SPIE Photonics West (7223-32), San Jose, CA (January 27, 2009)
18. Y. Zhang, and M. Lončar, "Ultra-high Q/V nanocavities based on sub-micron diameter micropillars and semiconductor nanowires," SPIE Photonics West (7223-31), San Jose, CA (January 27, 2009)
19. P.B. Deotare, M. Khan, and M. Lončar, "Vapor phase release of silicon nanostructures for optomechanics applications," SPIE Photonics West (7205-09), San Jose, CA (January 27, 2009)
20. T.M. Babinec, K. Smith, M. Khan, and M. Lončar, "Photonic Devices Fabricated in Single-Crystal Diamond Using Focused Ion Beam Milling," MRS, Boston, MA (December 2008)
21. M. Khan, M.W. McCutcheon, T.M. Babinec, P.B. Deotare, and M. Lončar, "Design, Fabrication, and Characterization of Si3N4 Photonic Crystal Nanocavities for Diamond-based Quantum Information Processing Applications," MRS Fall Meeting, Vol.1108-1152E, Boston, MA (December 2008)

Submitted Conference Abstracts

1. T. M. Babinec, B. Hausmann, M. Khan, Y. Zhang, P. Hemmer, M. Loncar, “Triggered Single Photon Emission from a Diamond Nanowire Antenna”, CLEO 2010
2. B. Hausmann, I. Bulu, T. M. Babinec, M. Khan, P. Hemmer, M. Loncar, “Plasmonic Nanocavities for Quantum Information Processing with Diamond Color Centers”, CLEO 2010
3. Q. Quan, P. B. Deotare, M. Loncar, “Deterministic Design of Ultrahigh Q and Small Mode Volume Photonic Crystal Nanobeam Cavity”, CLEO 2010
4. Q. Quan, J. Choy, M. Loncar, “Broadband waveguide-QED system on a chip”, CLEO 2010
5. Y. Zhang, M. Khan, Y. Huang, J. H. Ryou, P. Deotare, R. Dupuis, M. Loncar, “Photonic crystal nanobeam lasers”, CLEO 2010
6. I. Bulu, Q. Quan, F. Degirmenci, M. Khan, F. Capasso, M. Loncar, “Waveguide Integrated Plasmonic Devices”, CLEO 2010

Seminars

Cornell University	03/11/10	Rice University	03/08/06
UMASS Lowell	02/24/10	University of Texas, Austin	03/06/06
Princeton University	12/07/09	University of Illinois, Chicago	02/22/06
Columbia University	11/09/09	Harvard University	02/09/06
Caltech	10/27/09	University of Arizona, School of Optics	12/06/05
Purdue University	10/23/09	Massachusetts Institute of Technology	10/28/05
MIT	10/07/09	Lincoln Labs, Lexington, MA,	
University of California, Berkeley	10/02/09	(LEOS Photonic Crystal Workshop)	04/13/05
University of Arizona, School of Optics	10/01/09	Rowland Institute, Harvard	12/15/04
Stanford University	09/28/09	Physical Sciences Inc.	05/25/04
University of Pennsylvania	09/18/09	Harvard University	03/18/03
Harvard University	09/11/09	CREOL School of Optics	02/10/03
Advanced Energy Consortium, Austin	09/03/09	Columbia University	01/27/03
University of Waterloo, Canada	05/07/09	IBM Watson Research Laboratories	01/23/03
Sharp Laboratories	03/27/09	University of California, San Diego	01/15/03
MIT	12/02/08	Cornell Nanofabrication Facility	07/01/02
University of Washington	04/08/08	Bell Laboratories	03/29/02
Penn State University, College Park	05/14/07	University of California, Riverside	03/06/02
Schlumberger-Doll Research, Cambridge, MA	03/16/07	University of Wisconsin, Madison	02/25/02
MIT Lincoln Labs, Lexington, MA	12/01/06	Kyoto University, Japan	10/27/01
Georgia Institute of Technology	04/17/06	Yokohama National University, Japan	10/22/01
University of Pennsylvania	03/30/06	Stanford Research Institute International,	
University of Michigan, Ann Arbor	03/22/06	Menlo Park, CA	05/12/00
University of Maryland, College Park	03/16/06	Corning - Centre Européen de Recherche de Fontainebleau, France	Aug., Nov. 1999