

Denis V. Seletskiy

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EDUCATION

- 2010 **Ph.D. Optical Science and Engineering** (w/ distinction) *Univ. of New Mexico (Albuquerque, NM)*
Dissertation: "Ultrafast Terahertz Spectroscopy and Control of Collective Modes in Semiconductors",
Advisor: Prof. Mansoor Sheik-Bahae
- 2001 **B.S. Physics** with minor in Mathematics (cum laude) *Univ. of Alaska Fairbanks (Fairbanks, AK)*
Honors Thesis: "Experimental Observation of Sonoluminescence", Advisor: Prof. Channon P. Price

POSITIONS

- 10/10 – now National Research Council (National Academies) Postdoctoral Associate *AFRL (Kirtland AFB, NM)*
- 09/03 – 09/10 Graduate Research Assistant *Univ. of New Mexico (Albuquerque, NM)*
- 07/07 – 08/07 Visiting researcher *Univ. Konstanz (Konstanz, Germany)*
- Emmy-Noether "TERA" group of Dr. Rupert Huber: nonlinear femtosecond terahertz spectroscopy.
- 08/02 – 08/03 Post-baccalaureate research assistant *Los Alamos National Laboratory (Los Alamos, NM)*
- "LASSOR" group of Dr. Richard Epstein: experiments on laser cooling of solids.

TEACHING

- *Graduate Nonlinear Optics* (co-taught w/ Prof. M. Sheik-Bahae, Physics and Astronomy, Univ. of New Mexico, Fall 2011).
- *Undergraduate Physics Laboratory* (Teaching Assistant, Physics and Astronomy, Univ. of British Columbia, Fall 2001).

AWARDS

- 2010 - National Research Council Associateship Award
- 2010 - Semi-finalist at the OSA T. Maiman Outstanding Student Paper Competition (approx. top 2%)
- 2007 - Member of US delegation at 57th Meeting of Nobel Laureates and Students (Lindau, Germany)
- 2003 - National Science Foundation IGERT Fellowship (2003-2007)
- 2001 - Best Teaching Assistant Award (UBC, Fall semester)
- 2001 - Outstanding Undergraduate Student of the Year (UAF Physics Department)

PROFESSIONAL SERVICE

- Conference session chair (Photonics West 2010, 2012; ICL 2011).
- Member of organizing committee for OSA/SPIE Southwestern Optics Student Conference (Albuquerque, NM Jun 2009).
- Referee for Opt. Comm., JOSA B, Opt. Lett., Opt. Express, Opt. Materials.

PUBLICATION SUMMARY

12 journal articles (*1 invited*); > 20 refereed conference proceedings (*6 invited*); 40 talks at the meetings (*8 invited, 1 post-deadline*); 3 Patent applications; Number of citations: > 80 (Google Scholar).

RESEARCH SPOTLIGHT

Optical Refrigeration:

- *Cryocooler demonstration* [Seletskiy et. al. Nat. Photon. **4**, 161-164 (2010)] featured in:
 - J. Miller "Optical refrigeration sets solid-state cooling record", *Physics Today* **63**, 14-16 (2010);
 - "Cooling goes cryogenic" *Photonics Spectra* (Apr, 2010).
- *Cooling of a load* [Seletskiy et.al. QELS (QFG1, 2010); Seletskiy et.al. Opt. Exp. **18**, 18061 (2010)]:
 - Selected by OSA as one (out of total 5) noteworthy papers of the CLEO/QELS 2010 meeting;
 - featured in: "Optical refrigerator cools semiconductor payload to 165 K" *Laser Focus World*, Oct. 2010.

Terahertz:

- *Efficient THz emission from InAs nanowires* [Seletskiy et.al. Phys. Rev. B **84**, 115421 (2011)]:
 - Selected as "Editor's Suggestion" in September issue of PRB;
 - featured in: N. Horiuchi "Nanowire emitters" *Nat. Photon.* **5**, 712–713 (2011).

PATENT APPLICATIONS

5. *Coupled-Cavity Raman Spectroscopy* (in preparation). Authors: D.V. Seletskiy and M. Sheik-Bahae.
4. *Novel Method of Terahertz Imaging* (in preparation). Authors: D.V. Seletskiy and M. Sheik-Bahae.
3. *Two-Band Differential Spectral Metrology* (U.S. Prov. Patent App. No. 61/398,344, Jun 2010). Authors: D.V. Seletskiy and M. Sheik-Bahae.
2. *Solid State Optical Refrigeration Using Stark Manifold Resonances in Crystals* (U.S. Prov. Patent App. No. 61/284,808, Dec 2009). Authors: D.V. Seletskiy, R.I. Epstein, M.P. Hehlen, M. Sheik-Bahae
1. *Optical Coupled-Cavity Photo-Acoustic Spectroscopy* (U.S. Provisional Patent App. No. 61/217,51, Jun 2009). Authors: D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae.

JOURNAL ARTICLES

12. **[Invited]** D.V. Seletskiy, M.P. Hehlen, R.I. Epstein, M. Sheik-Bahae "Cryogenic Optical Refrigeration" *Advances in Optics and Photonics, Review article (accepted), (2012)*.
11. D.V Seletskiy, S.D Melgaard, R.I Epstein, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Precise Determination of Minimum Achievable Temperature for Solid-State Optical Refrigeration", *Journal of Luminescence (accepted), (2011)*.
10. D.V. Seletskiy, M.P. Hasselbeck, J.G. Cederberg, A. Katzenmeyer, M.E. Toimil-Molares, F. Léonard, A.A. Talin, M. Sheik-Bahae, "Efficient terahertz emission from InAs nanowires", *Phys. Rev. B* **84**, 115421 (2011). [arXiv:1109.0355v1](https://arxiv.org/abs/1109.0355v1)
9. D.V. Seletskiy, S.D. Melgaard, R.I. Epstein, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Local laser cooling of Yb:YLF to 110 K", *Optics Express*, **19**, 18229-18236 (2011).
8. M. Tiwari, D.V. Seletskiy, V.M. Kenkre, "Resonance Effects in the Nonadiabatic Nonlinear Quantum Dimer", *Eur. Phys. J. B* **81**, 147-153 (2011). [arXiv:1008.3744v1](https://arxiv.org/abs/1008.3744v1)
7. D.V. Seletskiy, S.D. Melgaard, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Laser cooling of a semiconductor load to 165 K", *Optics Express* **18**, 18061-18066 (2010).
6. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, "Cavity-enhanced absorption for optical refrigeration", *Applied Physics Letters* **96**, 181106 (2010). [arXiv:0909.3136](https://arxiv.org/abs/0909.3136)
5. W.M. Patterson, D.V. Seletskiy, M. Sheik-Bahae, R. I. Epstein, M. P. Hehlen, "Measurement of Solid-State Optical Refrigeration by Two-Band Differential Luminescence Thermometry", *JOSA B* **27**, 611-618 (2010).

4. D.V. Seletskiy, S.D. Melgaard, S. Bigotta, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Laser Cooling of Solids to Cryogenic Temperatures", *Nature Photonics*, **4** 161-164 (2010).
3. M. Sheik-Bahae, D. Seletskiy, "Laser cooling: Chilling dense atomic gases", *Nature Photonics*, **3** 680-681 (2009).
2. M.P. Hasselbeck, D. Seletskiy, L. R. Dawson, and M. Sheik-Bahae, "Direct observation of Landau damping in a solid state plasma", *Physica Status Solidi (c)*, **5** 253-256 (2008).
1. S. Bigotta, A. Di Lieto, A. Toncelli, M. Tonelli, D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, "Laser cooling of solids: New results with single fluoride crystals," *Nuovo Cimento B Serie*, **122** 685694 (2007).

REFEREED PROCEEDINGS

23. D. V. Seletskiy, C-Y Li, M. P. Hasselbeck, J. G. Cederberg, A. M. Katzenmeyer, M. E. Toimil-Molares, F. Léonard, A. A. Talin, M. Sheik-Bahae, "Strong THz emission from low-energy acoustic-like surface plasmons in InAs nanowires" *Proc. SPIE*, **8260**, 826012 (2012).
22. Chia-Yeh Li, Denis V. Seletskiy, Jeffrey G. Cederberg, Mansoor Sheik-Bahae, "Detection of ultrafast THz pulses via electro-absorption in coupled asymmetric quantum wells", *Proc. SPIE*, **8260**, 826021 (2012).
21. S. D. Melgaard, D. V. Seletskiy, A. Di Lieto, M. Tonelli and M. Sheik-Bahae, "High sensitivity spectroscopic and thermal characterization of cooling efficiency for optical refrigeration materials", *Proc. SPIE* **8275**, 827504 (2012);
20. Denis V. Seletskiy, Seth D. Melgaard and Mansoor Sheik-Bahae, "Thermal imaging with high spatial and temperature resolution", *Proc. SPIE* **8275**, 82750H (2012); doi:10.1117/12.910271
19. Seth D. Melgaard, Juanita Trevino, Denis V. Seletskiy and Mansoor Sheik-Bahae, "Novel photon blockade schemes for thermal link applications", *Proc. SPIE* **8275**, 82750I (2012); doi:10.1117/12.912437
18. M. Ghasemkhani, D. V. Seletskiy and M. Sheik-Bahae, "Polarization-resolved optical metrology for noncontact thermometry", *Proc. SPIE* **8275**, 82750J (2012); doi:10.1117/12.910342
17. **[Invited]** A. R. Albrecht, D. V. Seletskiy, J. G. Cederberg, A. Di Lieto, M. Tonelli, J. V. Moloney, G. Balakrishnan, M. Sheik-Bahae, "Intracavity laser cooling using a VECSEL", *Proc. SPIE* **8275**, 827505 (2012); doi:10.1117/12.910329
16. M. Ghasemkhani, D. V. Seletskiy, M. Sheik-Bahae, "Sensitive thermal reflectance measurement for laser cooling applications", *Proc. SPIE* **7951**, 79510J (2011).
15. S. D. Melgaard, D. V. Seletskiy, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Experimental evidence for laser cooling of Yb:YLF to 120 Kelvin", *Proc. SPIE* **7951**, 795105 (2011).
14. D. V. Seletskiy, R. I. Epstein, M. Sheik-Bahae, "Progress toward sub-100 Kelvin operation of an optical cryocooler", *Proc. SPIE* **7951**, 795103 (2011).
13. D.V. Seletskiy, S. Melgaard, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, and M. Tonelli. "Laser cooling of a semiconductor load using a Yb:YLF optical refrigerator", *Proc. SPIE* **7614**, 761409 (2010).
12. S. Melgaard, D. Seletskiy, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, M. Tonelli, R. Epstein. "Spectroscopy of Yb-doped YLF crystals for laser cooling", *Proc. SPIE* **7614**, 761407 (2010).
11. **[Invited]** D.V. Seletskiy, S.D. Melgaard, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, M. Tonelli, R.I. Epstein. "Optical refrigeration breaks the Peltier barrier: cooling Yb:YLF to 155K", *Proc. SPIE* **7614**, 761403 (2010).
10. **[Invited]** D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, J.G. Cederberg, and A.A. Talin. "THz emission from coherent plasmons in InAs nanowires", *Proc. SPIE* **7214**, 72140Y (2009).
9. D.V. Seletskiy, S.D. Melgaard, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, S. Bigotta, and M. Tonelli. "Recent progress in laser cooling via resonant cavity", *Proc. SPIE* **7228**, 72280F (2009).
8. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, and R.I. Epstein. "Fast differential luminescence thermometry", *Proc. SPIE* **7228**, 72280K (2009).

7. D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, and L.R. Dawson. "Direct observation of Landau damping with coherent plasmons in InSb", *Proc. SPIE* **6892**, 68921S (2008).
6. **[Invited]** D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, S. Bigotta, and M. Tonelli. "Cooling of Yb:YLF using cavity enhanced resonant absorption" *Proc. SPIE* **6907**, 69070B (2008).
5. M.P. Hasselbeck, D. Seletskiy, L.R. Dawson, M. Sheik-Bahae. "Landau Damping of Coherent Plasmons", *Springer Series in Chemical Physics, Ultrafast Phenomena XV* **88**, 654-656 (2007).
4. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, and R.I. Epstein. "Laser cooling using cavity enhanced resonant absorption", *Proc. SPIE* **6461**, 646104 (2007).
3. **[Invited]** M.P. Hasselbeck, D.V. Seletskiy, M. Sheik-Bahae, and L.R. Dawson. "Coherent plasmons in InSb", *Proc. SPIE* **6118**, 61180W (2006).
2. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, J. Thiede, and R.I. Epstein. "Cavity-enhanced resonant absorption with application for laser cooling", *Proc. SPIE* **6130**, 61300P (2006).
1. **[Invited]** M.P. Hasselbeck, M. Sheik-Bahae, J. Thiede, J. Distel, S. Greenfield, W. Patterson, S. Bigotta, B. Imangholi, D. Seletskiy, D. Bender, V. Vankipuram, N. Vadiiee, R.I. Epstein. "Laser cooling of infrared sensors", *Proc. SPIE* **5543**, 31-40 (2004).

PRESENTATIONS AT SCHOLARLY MEETINGS

40. M. Ghasemkhani, D. V. Seletskiy, M. Sheik-Bahae, "Polarization-resolved optical metrology for noncontact thermometry", Photonics West (San Francisco, Jan 21-26, **2012**) paper 8275-18.
39. S. Melgaard, D. Seletskiy, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "High sensitivity spectroscopic and thermal characterization of cooling efficiency for optical refrigeration materials", Photonics West (San Francisco, Jan 21-26, **2012**) paper 8275-3.
38. **[Invited]** A.R. Albrecht, D.V. Seletskiy, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Intracavity laser cooling using a VECSEL", Photonics West (San Francisco, Jan 21-26, **2012**) paper 8275-4.
37. D.V. Seletskiy, J. Trevino, S.D. Melgaard, M. Sheik-Bahae, "Novel photon blockade schemes for thermal link applications", Photonics West (San Francisco, Jan 21-26, **2012**), paper 8275-17.
36. D.V. Seletskiy, S.D. Melgaard, Mansoor Sheik-Bahae, "Thermal imaging with high spatial and temperature resolution", Photonics West (San Francisco, Jan 21-26, **2012**), paper 8275-11.
35. D.V. Seletskiy, C.-Y. Li, J.G. Cederberg, A. Katzenmeyer, E. Morales, F. Leonard, A. Talin, M. Sheik-Bahae, "Strong THz emission from low-energy acoustic-like surface plasmons in InAs nanowires", Photonics West (San Fran, Jan 21-26, **2012**), paper 8260-12.
34. C.-Y. Li, D.V. Seletskiy, J.G. Cederberg, M. Sheik-Bahae, "Detection of ultrafast THz pulses via electro-absorption in coupled asymmetric quantum wells", Photonics West (San Francisco, Jan 21-26, **2012**), paper 8260-21.
33. D. Seletskiy, M. Hasselbeck, C.-Y. Li, J. Cederberg, A. Katzenmeyer, M. Toimil-Molares, F. Leonard, A. Talin, M. Sheik-Bahae, "Efficient THz Emission from the Acoustic Surface Plasmons in InAs Nanowires", Nonlinear Optics Meeting (Kauai, HI, Jul. 17-22 **2011**), paper NMC2.
32. Mansoor Sheik-Bahae, Denis Seletskiy, "Lasers Running in Reverse: Optical Refrigeration below NIST-Cryogenics", Nonlinear Optics Meeting (Kauai, HI, Jul. 17-22 **2011**), paper NME1.
31. D. Seletskiy, S. Melgaard, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Cryogenic Optical Refrigeration", 16th International Conference on Luminescence and Optical Spectroscopy of Condensed Matter (Ann Arbor, MI Jun. 27 – Jul. 1 **2011**), paper MG4.
30. S. Melgaard, D. Seletskiy, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "High Sensitivity Optical Refrigeration Spectroscopy: Local Cooling of Yb:YLF Crystal to 110 K", QELS (Baltimore, MD May 1-6, **2011**), paper QW14.
29. D. Seletskiy, M. Hasselbeck, C.-Y Li, J. Cederberg, A. Katzenmeyer, M. Toimil-Molares, F. Leonard, A. Talin, M. Sheik-Bahae, "THz Acoustic Plasmons in InAs Nanowires", QELS (Baltimore, MD May 1-6, **2011**) paper QWH1.

28. M. Ghasemkhani, D. V. Seletskiy, M. Sheik-Bahae, "Sensitive thermal reflectance measurement for laser cooling applications", *Photonics West* (San Francisco, CA Jan. 22-27, **2011**) paper 7951-18.
27. S. D. Melgaard, D. V. Seletskiy, A. Di Lieto, M. Tonelli, M. Sheik-Bahae, "Experimental evidence for laser cooling of Yb:YLF to 120 Kelvin", *Photonics West* (San Francisco, CA Jan. 22-27, **2011**) paper 7951-4.
26. D. V. Seletskiy, R. I. Epstein, M. Sheik-Bahae, "Progress toward sub-100 Kelvin operation of an optical cryocooler", *Photonics West* (San Francisco, CA, 22-27 Jan. **2011**) paper 7951-2.
25. A. Di Lieto, M. Tonelli, D. V. Seletskiy, S. D. Melgaard, M. Sheik-Bahae, "Laser cooling of solids to cryogenic temperatures", *International Conference on Optical, Optoelectronic and Photonic Materials and Applications* (Budapest, Hungary, 15-19 Aug. **2010**), paper A-0143.
24. **[Invited]** D. V. Seletskiy, S. D. Melgaard, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, M. Tonelli, "Laser Cooling of a Semiconductor Load to 165 K", *QELS* (San Jose, CA, May 16-21 **2010**) paper QFG1.
23. D. Seletskiy, S. Melgaard, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, and M. Tonelli, "Laser cooling of a semiconductor load using a Yb:YLF optical refrigerator", *Photonics West* (San Francisco, CA, 23-28 Jan. **2010**) paper 7614-8.
22. S. Melgaard, D. Seletskiy, and M. Sheik-Bahae, "Spectroscopy of Yb-doped YLF crystals for laser cooling", *Photonics West* (San Francisco, CA, 23-28 Jan. **2010**) paper 7614-6.
21. **[Invited]** D. Seletskiy, S. Melgaard, M. Sheik-Bahae, S. Bigotta, A. Di Lieto, and M. Tonelli, "Optical refrigeration breaks the Peltier barrier: cooling Yb:YLF to 155K", *Photonics West* (San Francisco, CA, 23-28 Jan. **2010**) paper 7614-2.
20. **[Post-deadline]** D.V. Seletskiy, S.D. Melgaard, S. Bigotta, A. Di Lieto, M. Tonelli, R.I. Epstein, M. Sheik-Bahae, "Demonstration of an Optical Cryocooler", *IQEC* (Baltimore, MD, 1-5 Jun. **2009**) paper IPDA09.
19. D.V. Seletskiy, S.D. Melgaard, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, S. Bigotta, M. Tonelli, "Recent progress in laser cooling via resonant cavity", *Photonics West* (San Jose, CA, 24-29 Jan. **2009**) paper 7228-14.
18. **[Invited]** M.P. Hasselbeck, C. Wang, D.V. Seletskiy, M. Sheik-Bahae, R.I. Epstein, "Ultra-sensitive measurements of external quantum efficiency in semiconductor laser cooling", *Photonics West* (San Jose, CA, 24-29 Jan. **2009**) paper 7228-01.
17. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, "Fast differential luminescence thermometry", *Photonics West* (San Jose, CA, 24-29 Jan. **2009**) paper 7228-19.
16. **[Invited]** D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, J.G. Cederberg, A.A. Talin, "THz emission from coherent plasmons in InAs nanowires", *Photonics West* (San Jose, CA, 24-29 Jan. **2009**) paper 7214-33.
15. J.G. Cederberg, B.S. Swartzentruber, K.C. Cross, D.L. Alliman, A.A. Talin, D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, "Electrical and optical properties of oriented InAs and InP NWs grown on GaAs(111)B and Si(111) substrates", *14th International Conference of Metalorganic Vapor Phase Epitaxy*, (Metz, France, 1-6 Jun. **2008**) paper Tu-B1.4.
14. D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, J.G. Cederberg, L.C. Chuang, M. Moewe, C.J. Chang-Hasnain, "Observation of THz Emission from InAs Nanowires", *CLEO* (San Jose, CA, 4-9 May **2008**) paper CMM2.
13. **[Invited]** D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, R.I. Epstein, S. Bigotta, M. Tonelli, "Cooling of rare-earth doped YLF using cavity enhanced resonant absorption", *Phot. West* (San Jose, CA, 19-24 Jan. **2008**) paper 6907-10.
12. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, L.R. Dawson, "Direct observation of Landau damping with coherent plasmons in InSb", *Photonics West* (San Jose, CA, 19-24 Jan. **2008**) paper 6892-63.
11. M.P. Hasselbeck, D. Seletskiy, M. Sheik-Bahae, L.R. Dawson. Direct Observation of Landau Damping in a Solid State Plasma, *15th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors*, (Tokyo, Japan, 23-27 July **2007**) paper ThB-5.
10. D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae and L.R. Dawson. "Blue-shifting of coherent plasmon radiation due to Landau damping", *QELS*, (Baltimore, MD, 6-11 May **2007**) paper QThA2.
9. D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae and R.I. Epstein. "Cavity enhanced resonant absorption in laser cooling of solids", *QELS*, (Baltimore, MD, 6-11 May **2007**) paper QWG3.

8. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae and R.I. Epstein. "Laser cooling using cavity enhanced resonant absorption", *Photonics West* (San Jose, CA, 20-25 Jan. **2007**) paper 6461-03.
7. M.P. Hasselbeck, D. Seletskiy, M. Sheik-Bahae, and L.R. Dawson "Landau damping of coherent plasmons", *Ultrafast Phenomena XV* (Pacific Grove, CA, July 31 - Aug. 4, **2006**) paper ThD10.
6. D. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, and L.R. Dawson. "Dynamics of coherent plasmon damping", *QELS*, (Long Beach, CA , 21-26 May **2006**) paper QThF3.
5. D.V. Seletskiy, M.P. Hasselbeck, M. Sheik-Bahae, J. Thiede, and R.I. Epstein. "Cavity-enhanced resonant absorption with application for laser cooling", *Photonics West* (San Jose, CA, 21-26 Jan. **2006**) paper 6130-25.
4. **[Invited]** M.P. Hasselbeck, D.V. Seletskiy, M. Sheik-Bahae, and R. Dawson. "Coherent plasmons in InSb", *Photonics West* (San Jose, CA, 21-26 Jan. **2006**) paper 6118-33.
3. W.M. Patterson, A. Mocofanescu, B. Imangholi, D.V. Seletskiy, M. Sheik-Bahae, J. Thiede, R.I. Epstein, S. Bigotta, D. Parisi, A. Toncelli, and M. Tonelli. "Laser cooling with next-generation crystal hosts", *Photonics West* (San Jose, CA, 21-26 Jan. **2006**) paper 6115-83.
2. **[Invited]** M.P. Hasselbeck, M. Sheik-Bahae, J. Thiede, J. Distel, S. Greenfield, W. Patterson, S. Bigotta, B. Imangholi, D. Seletskiy, D. Bender, V. Vankipuram, N. Vadiee, R.I. Epstein. "Laser cooling of infrared sensors", *Proc. SPIE* **5543**, 31-40 (2004).
1. C.W. Hoyt, W. Patterson, M.P. Hasselbeck, B. Imangholi, M. Sheik-Bahae, R.I. Epstein, J. Thiede, D. Seletskiy. "Laser cooling thulium-doped glass by 24K from room temperature", *Quantum Electronics and Laser Science Conference QELS* (Baltimore, MD, 1 Jun. **2003**) paper QThL4.

SEMINARS AND COLLOQUIA

1. Seminar: "Review of Laser Cooling of Solids", Physics Dept., *Universität Konstanz, Konstanz Germany* (Jul. 2007).

FUNDING

2010 STC.UNM Gap Funding Grant: *Intra-cavity optical refrigerator*, PI: M. Sheik-Bahae, co-PI: D.V. Seletskiy. Award: **\$25K**