Curriculum Vitae

1. Personal Data

Name: Hyunchul Nha
Email: hyunchul.nha@qatar.tamu.edu, phylove00@gmail.com
Current position: Professor, Texas A & M University at Qatar
Mailing address: Texas A & M University at Qatar
Education City, PO Box 23874
Doha, Qatar
Tel: +974-4423-0273
Fax: +974-4243-0060

2. Research Areas

Quantum Information Science
Quantum Optics
Foundations of Quantum physics
Theory of Open Quantum Systems

3. Professional employment

Sep. 2015 ~ Present: Professor, Texas A & M University at Qatar
Sep. 2010 ~ Aug. 2018: KIAS Scholar, Korea Institute for Advanced Study
Jul. 2011 ~ Aug. 2015: Associate Professor, Texas A & M University at Qatar
Jul. 2007 ~ June 2011: Assistant Professor, Texas A & M University at Qatar
Sep. 2006 ~ Jul. 2007: Assistant Professor, Korea Institute for Advanced Study, Korea
Feb. 2007 ~ Jun. 2007: UQ Research Fellow, University of Queensland, Australia
Sep. 2006 ~ Dec.2006: Lecturer (graduate course), School of Physics and Astronomy, Seoul National University
Oct. 2005 ~ Aug. 2006: Research Fellow, Korea Institute for Advanced Study, Korea
Jun. 2005 ~ Sep. 2005: Visiting Scholar, Korea Institute for Advanced Study, Korea
Mar. 2003 ~ May 2005: Research Fellow (Post-Doctoral), University of Auckland, New Zealand
Oct. 2002 ~Feb. 2003: Post Doctoral Fellow, Seoul National University, Korea
Mar. 2002 ~ Sep. 2002: Post Doctoral Fellow, Natural Science Research Institute, KAIST, Korea
Jun. 2001 ~Oct. 2001: Visiting Scholar (courtesy faculty), Oregon Center for Optics, University of Oregon, USA
Apr. 1999 ~ Feb. 2002: Researcher, Natural Science Research Institute, KAIST, Korea

4. Education

Mar.1997 ~Feb.2002 Ph. D. Department of Physics, Seoul National University
(PhD Thesis: Nonclassical effects enhanced by damping in a driven cavity QED system)
Mar.1995 ~Feb.1997 M. S. Department of Physics, Seoul National University
Mar.1990 ~Feb.1995 B. S. Department of Physics, Seoul National University with great

distinction

5. Significant distinctions, Grants & Awards

2011-2012 Humboldt Research Fellowship for Experienced Researchers
from Alexander von Humboldt Foundation, Germany

2006 UQ Research Fellowship 2007-2009, University of Queensland, Australia

2016-2019 Lead Principal Investigator of the 3-year project "Multipartite Continuous-Variable Correlations for quantum communications" with a total budget of US$897,261 funded by Qatar National Research Fund

2016-2019 Co-Principal Investigator of the 3-year project "Ultra-high precision lithography, microscopy, and imaging" with a total budget of US$803,076 funded by Qatar National Research Fund

2015-2018 Co-Principal Investigator of the 3-year project "Applications of Nanotechnology to Quantum Informatics" with a total budget of US$898,221.1 funded by Qatar National Research Fund

2012-2015 Co-Principal Investigator of the 3-year project "Precision measurements with applications in optomechanical systems, lithography, and nonreciprocity" with a total budget of US$ 1,007,258 funded by Qatar National Research Fund

2012-2015 Lead Principal Investigator of the 3-year project "Quantum Correlations for Quantum Communication" with a total budget of US$ 909,669 funded by Qatar National Research Fund

2012-2015 Lead Principal Investigator of the 3-year project "Quantum state engineering for macroscopic systems" with a total budget of US$ 976,675 funded by Qatar National Research Fund

2012-2015 Co-Principal Investigator of the 3-year project "Coherent control of optical processes in nano devices and optical switches" with a total budget of US$ 796,385 funded by Qatar National Research Fund

2009-2012 Co-Principal Investigator of the 3-year project "Applications of quantum interferometry and coherence to precision sensing, microscopy and lithography" with a total budget of US$ 1,026,432 funded by Qatar National Research Fund

2008-2011 Lead Principal Investigator of the 3-year project "Quantum Entanglement for Secure Communication" with a total budget of US$ 664,636 funded by Qatar National Research Fund

2002 Best PhD Thesis Prize, School of Physics, Seoul National University

1998 Lotte Fellow Scholarship, Lotte Foundation

1997 Best Master Thesis Prize, College of Natural Science, Seoul National University

6. Research services

Evaluator for Research Programs and Proposals, European Commission

Program Committee member for the International Conference "Asian conference on Quantum Information Science"

Referee of the American Physical Society
: Physical Review X, Physical Review Letters, Physical Review A

Referee of the Optical Society of America
: Optics Letters, Optics Express, Journal of the Optical Society of America B

Referee of Institute of Physics
: Journal of Physics A (Mathematical and Theoretical), Journal of Physics B (Atomic Molecular, and Optical Physics), New Journal of Physics, Communication in Theoretical Physics, European Journal of Physics

Referee of Nature Publishing Group
: Nature Communications, Scientific Reports, etc.

7. Invited Lectures/Talks

July 2019 Invited talk at International Conference of Quantum Computing, July 11-12, Seoul Korea
June 2019 "No-cloning bound and secure teleportation beyond Gaussian states", 26th Central European Workshop on Quantum Optics, Paderborn, Germany, June 3-7, 2019
Oct. 2018 Invited Talk at Quantum and Nonlinear Optics V, 2018 SPIE Photonics Asia, Beijing, China
May 2018 Invited lecture at Institute for Quantum Science and Engineering, Southern University of Science and Technology, Shenzhen, China
Aug. 2017 Invited talk at the 15th International Conference on Squeezed States and Uncertainty Relations, Jeju, Korea
Aug. 2017 Colloquium at Ulsan National Institute of Science and Technology, Korea
Aug. 2017 Invited talk at Korea Research Institute of Standards and Science, Korea
July 2017 Invited lecture series at 42nd International Nathiagali Summer College, Pakistan Atomic Energy Commission
July 2017 Invited Talk at Asian Pacific Center for Theoretical Physics
July 2017 Invited Tutorial at Optics and Photonics Congress, Optical Society of Korea
June 2017 "Gaussian benchmark for optical communication towards ultimate capacity", 25th Central European Workshop on Quantum Optics, Lyngby Denmark, June 26-30, 2017
Dec. 2016 Invited talk at the Dodd Walls Center for Photonic and Quantum Technologies, New Zealand
Apr. 2016 Invited talk at Princeton-TAMU symposium on Quantum Noise Effects in Thermodynamics, Biology and Information, Princeton, US
Oct. 2015 Colloquium at Ulsan National Institute of Science and Technology, Korea
July 2014 Invited lecture at Open KIAS Summer School on Quantum Information Science, Korea Institute for Advanced Study, Seoul, Korea
May 2013 Invited talk at International Conference on Quantum Optics and New Materials (V), Beijing Computational Science Research Center, China
July 2012 Invited talk at Center for Quantum Information, Tsinghua University, Beijing, China
Aug. 2011 Invited talk at the International conference of Asian conference on Quantum Information Science, Busan, Korea
June 2011 Invited talk at University of Rostock, Germany
July 2011 Invited talk at Korea Advanced Institute of Science and Technology, Korea
Jun. 2010 Colloquium at Korea Institute for Advanced Study, Korea
Aug. 2005-2009 Invited at KAIST-KIAS international conference on quantum information science, Seoul, Korea

July 2009 Invited talk at International Conference on Quantum Foundations and Technology: Frontier and Future, Shanghai, China
July 2009 Theory Colloquium, Institute of Quantum Physics, University of Ulm, Germany
Mar. 2009 Invited talk at KACST 3rd International Symposium on Quantum Optics and Informatics, Riyadh, Saudi Arabia
Aug. 2006 Invited at Asia-Pacific Conference on Quantum Information Conference, Seoul, Korea
May 2006 Invited at the international conference QUANTUM OPTICS, Belarus
Apr. 2006 Invited Tutorial Lecture on the Quantum Trajectory Theory, Korean Physical Society meeting
Feb. 2006 Colloquium at University of Oregon, US
Nov. 2005 Colloquium at Postech, Pohang, Korea
Dec. 2004 Invited at the international conference QUANTUM OPTICS II, Mexico
Mar. 2002 Special Lecture on the Quantum Trajectory Theory, Inha University, Korea

and more seminars in Universities and Research Institutes overseas

8. Teaching Experience

Aug. 2007- Present: Texas A & M University at Qatar

Phys218 **Mechanics** (Calculus-based)
Phys208 **Electromagnetism and Optics** (Calculus-based**)**
Phys222 **Modern Physics for Engineers**

Nov. 2018 Invited lecture series in School on "**Quantum Information Theory of Gaussian States"**, Asia Pacific Center for Theoretical Physics, Korea

July 2017 Invited lecture series on **Quantum Optics** at 42nd International Nathiagali Summer College, Pakistan Atomic Energy Commission, Pakistan

Sep.-Dec. 2006: **Quantum Optics** (graduate course), Seoul National University

Apr. 2006: Invited Tutorial Lecture on **Quantum Trajectory Theory**, Korean Physical Society meeting

Mar. 2002, 2007 Invited Lectures on **Quantum Trajectory Theory**, Inha University & Korea Institute for Advanced Study

9. Publications

*corresponding authorship

[94] J. Park, J. Lee, **H. Nha***, "Entropic nonclassicality and quantum non-Gaussianity tests via beam splitting", Scientific Reports **9**, 17835 (2019).

[93] J. Park, J. Lee, K. Baek, S.-W. Ji, **H. Nha***, "Faithful measure of quantum non-Gaussianity via quantum relative entropy", Phys. Rev. A **100**, 012333 (2019).

[92] J. Lee, J. Park, **H. Nha***, "Quantum non-Gaussianity and secure communications", NPJ Quantum Information **5**, 49 (2019). https://doi.org/10.1038/s41534-019-0164-9

[91] K. Baek, H. Nha, W. Son, "Entropic uncertainty relations via direct-sum majorization relation for generalized measurements", Entropy **21**, 270 (2019).

[90] C. Oh, C. Lee, C. Rockstuhl, H. Jeong, J. Kim, **H. Nha**, S.-Y. Lee, "Optimal Gaussian measurements for phase estimation in single-mode Gaussian metrology", NPJ Quantum Information **5,** 10 (2019). https://doi.org/10.1038/s41534-019-0124-4

[89] C.-S. Noh and **H. Nha***, "Output field squeezing in a weakly-driven dissipative Rabi model", Opt. Comm. **435**, 350 (2019).

[88] K. Baek and **H. Nha***, "Non-Gaussianity and entropy-bounded uncertainty relations: Application to detection of non-Gaussian entangled states", Phys. Rev. A **98**, 042314 (2018).

[87] L. Happ, M. Efremov, **H. Nha***, and W. Schleich "Sufficient condition for a quantum state to be genuinely quantum non-Gaussian", New J. Phys. **20**, 023046 (2018).

[86] C. Oh, S.-Y. Lee, H. Nha and H. Jeong, "Practical resources and measurements for lossy optical quantum metrology", Phys. Rev. A **96**, 062304 (2017).

[85] J. Park, J. Lee, S.-W. Ji, and **H. Nha***, "Quantifying non-Gaussianity of quantum-state correlation", Phys. Rev. A **96**, 052324 (2017).

[84] J. Lee, J. Park and **H. Nha*** "Optimal continuous-variable teleportation under energy constraint", Phys. Rev. A **95**, 052343 (2017).

[83] J. Park, Y. Lu, J. Lee, Y. Shen, K. Zhang, S. Zhang, M. S. Zubairy, K. Kim, **H. Nha*** "Revealing nonclassicality beyond Gaussian states via a single marginal distribution", Proc. Nat. Acad. Sci. **114**, 891 (2017). doi: 10.1073/pnas.1617621114

[82] J. Lee, S.-W. Ji, J. Park and **H. Nha***, "Monogamy relation in multipartite continuous-variable quantum teleportation", Phys. Rev. A **94**, 062318 (2016).

[81] Z. Liao, **H. Nha** and M. S. Zubairy **"**Dynamical theory of single-photon transport in a one-dimensional waveguide coupled to identical and nonidentical emitters", Phys. Rev. A **94**, 053842 (2016)

[80] A. Le Boite, M.-J. Hwang, **H. Nha** and M. B. Plenio, "Fate of photon blockade in the deep strong-coupling regime ", Phys. Rev. A **94**, 033827 (2016).

[79] Su-Yong Lee, Chang-Woo Lee, J. Lee, and **H. Nha***, "Quantum phase estimation using a class of path-symmetric entangled states", Scientific Reports **6**, 30306 (2016).

[78] S.-W. Ji, J. Lee, J. Park and **H. Nha***, "Quantum steering of Gaussian states via non-Gaussian measurements", Scientific Reports **6**, 29729 (2016).

[77] J. Lee, S.-W. Ji, J. Park, and **H. Nha*** "Gaussian benchmark for optical communication towards ultimate capacity", Phys. Rev. A **93**, 050302(R) (2016).

[76] M. Um, J. Zhang, D. Lv, Y. Lu , S. An , J.-N. Zhang, **H. Nha,** M. S. Kim, and K. Kim "Phonon arithmetic in a trapped ion system", Nature Communications **7**, 11410 (2016).

[75] Z. Liao, **H. Nha** and M. S. Zubairy "Single-photon frequency-comb generation in a one-dimensional waveguide coupled to two atomic arrays", Phys. Rev. A **93**, 033851 (2016)

[74] Z. Liao, X. Zeng, **H. Nha** and M. S. Zubairy "Photon Transport in a One-dimensional Nanophotonic Waveguide QED System", Physica Scripta **91**, 63004 (2016)

[73] J. Park, J. Zhang, J. Lee, S.-W. Ji, M. Um, D. Lv, K. Kim, **H. Nha*** "Testing nonclassicality and non-Gaussianity in phase space", Physical Review Letters **114**, 190402 (2015).

[72] J. Park and **H. Nha*** "Demonstrating nonclassicality and non-Gaussianity of single-mode fields: Bell-type tests using generalized phase-space distributions", Phys. Rev. A **92**, 062134 (2015).

[71] S.-W. Ji, J. Lee, J. Park and **H. Nha***, "Steering criteria via covariance matrices of local observables in arbitrary-dimensional quantum systems", Phys. Rev. A **92**, 062130 (2015).

[70] C.-W. Lee, Pawel Kurzynski, and **H. Nha**, "Quantum walk as a simulator of nonlinear dynamics: Nonlinear Dirac equation and solitons", Phys. Rev. A **92**, 052336 (2015).

[69] L. Fan, W. Ge, **H. Nha**, and M. S. Zubairy, "Tradeoff between information gain and fidelity under weak measurements, Physical Review A **92**, 022114 (2015).

[68] S.-Y. Lee, C.-W. Lee, **H. Nha***, and D. Kaszlikowski "Quantum phase estimation with four-headed cat states", J. Opt. Soc. Am. B **31**, 656 (2015).

[67] J. Lee, S.-W. Ji, J. Park, and **H. Nha*** "Classical capacity of Gaussian communication under a single noisy channel", Physical Review A **91**, 042336 (2015).

[66] S.-W. Ji, M. S. Kim and **H. Nha***, "Quantum steering of multimode Gaussian states by Gaussian measurements: monogamy relations and Peres conjecture", Journal of Physics A: Mathematical and theoretical **48**, 135301 (2015).

[65] J. Kim, J. Lee, S.-W. Ji, **H. Nha**, P. M. Anisimov, and J. P. Dowling, "Coherent-state optical qudit cluster state generation and teleportation via homodyne detection", Optics Communications **33**7, 79 (2015).

[64] J. Lee, S.-W. Ji, J. Park, **H. Nha***, "Continuous-variable dense coding via a general Gaussian state: Monogamy relation", Physical Review A **90**, 022301 (2014).

[63] C. H. Meaney, H. Nha, T. Duty and G. J. Milburn, “Quantum and classical nonlinear dynamics in a microwave cavity”, EPJ Quantum Technology **1**, 7 (2014).

[62] J. Park, S.-W. Ji, J. Lee, **H. Nha*** “Gaussian states under coarse-grained continuous variable measurements”, Physical Review A **89**, 042102 (2014).

[61] C.-W. Lee, J. Ryu, J. Bang, and H. Nha, “Inseparability criterion using higher-order Schrödinger–Robertson uncertainty relation”, J. Opt. Soc. Am. B **31**, 656 (2014).

[60] W. Ge, M. Al-Amri, **H. Nha**, and M. S. Zubairy, “Entanglement of movable mirrors in a correlated-emission laser via cascade-driven coherence”, Phys. Rev. A **88**, 052301 (2013).

[59] H.-J. Kim, J. Kim, and **H. Nha***, “Enhanced multipartite quantum correlation by non-Gaussian operations”, Physical Review A **88**, 032109 (2013).

[58] W. Ge, M. Al-Amri, **H. Nha**, and M. S. Zubairy, “Entanglement of movable mirrors in a correlated-emission laser”, Phys. Rev. A **88**, 022338 (2013)

[57] C.-W. Lee, S.-W. Ji and and **H. Nha***, "Quantum steering for continuous-variable states," J. Opt. Soc. Am. B **30**, 2483 (2013)

[56] J. Lee, and **H. Nha***, “Entanglement distillation for continuous variables in a thermal environment: Effectiveness of a non-Gaussian operation” Physical Review A **87**, 032307 (2013).

[55] M. G. Genoni, M. G. A. Paris, G. Adesso, **H. Nha**, P. L. Knight, and M. S. Kim, “Optimal estimation of joint parameters in phase space”, Physical Review A **87**, 012107 (2013).

[54] S.-Y. Lee, J.-Y. Park, H.-W. Lee, and **H. Nha*, “**Generating arbitrary photon-number entangled states for continuous-variable quantum informatics”, Optics Express **20**, 14221 (2012).

[53] C.-W. Lee, J. Lee, **H. Nha,** H. Jeong**, “**Generating a Schrodinger-cat-like state via a coherent superposition of photonic operations” , Phys. Rev. A **85**, 063815 (2012).

[52] S.-Y. Lee and and **H. Nha***, “Second-order superposition operations via Hong-Ou-Mandel interference”, Physical Review A **85**, 043816 (2012).

[51] **H. Nha***, S.-Y. Lee, S.-W. Ji, and M. S. Kim, “Efficient entanglement criteria beyond Gaussian limits using Gaussian measurements”, Physical Review Letters **108**, 030503 (2012).

[50] J.-Y. Park, S.-Y. Lee, H.-W. Lee, and **H. Nha***, “Enhanced Bell violation by a coherent superposition of photon subtraction and addition”, J. Opt. Soc. Am. B **29**, 906 (2012).

[49] H.-J. Kim, S.-Y. Lee, S.-W. Ji, and **H. Nha***, “Quantum linear amplifier enhanced by photon subtraction and addition”, Physical Review A **85**, 013839 (2012).

[48] J. Lee, M. S. Kim, and **H. Nha***, "Comment on ``Role of initial entanglement and non-Gaussianity in the decoherence of photon-number entangled states evolving in a noisy channel"", Physical Review Letters **107**, 238901 (2011).

[47] S.-Y. Lee, T. Paterek, H.-S. Park, and **H. Nha***, “Linear optical scheme for producing polarization-entangled NOON States”, Optics Communications **285**, 307 (2012).

[46] S.-Y. Lee, S.-W. Ji, H.-J. Kim, and **H. Nha***, “Enhancing quantum entanglement for continuous variables by a coherent superposition of photon subtraction and addition”, Physical Review A **84**, 012302 (2011).

[45] R. Tahira, M. Ikram, **H. Nha**, and M. S. Zubairy, "Gaussian-state entanglement in a quantum beat laser", Physical Review A **83**, 054304 (2011).

[44] S.-Y. Lee and **H. Nha***, “Quantum state engineering by a coherent superposition of photon subtraction and addition”, Physical Review A **82**, 053812 (2010).

[43] S.-W. Ji, J. Kim, H.-W. Lee, M. S. Zubairy, and **H. Nha***, “Loophole-free Bell test for continuous variables via wave and particle correlations”, Physical Review Letters **105**, 170404 (2010).

[42] **H. Nha***, G. J. Milburn, and H. J. Carmichael, “Linear amplification and quantum cloning for non-Gaussian continuous variables”, New J. Phys. **12**, 103010 (2010).

[41] C.-J. Zhang, **H. Nha**, Y.-S. Zhang, and G.-C. Guo, “Detection of bound entanglement in continuous variable systems”, Physical Review A **82**, 032323 (2010).

[40] H. Hong, **H. Nha***, J.-H. Lee, and K. An, "Rigorous Criterion for characterizing correlated multiphoton emissions", Optics Express **18**, 7092-7100 (2010).

[39] C.-J. Zhang, **H. Nha**, Y.-S. Zhang, and G.-C. Guo, “Entanglement detection via tighter local uncertainty relations”, Physical Review A **81**, 012324 (2010).

[38] Q. Sun, **H. Nha***, and M.S. Zubairy, “Entanglement criteria and nonlocality for multimode continuous variable systems” , Physical Review A **80**, 020101(R) (2009).

[37] C. Noh, A. Chia, **H. Nha**, M. Collett, and H. J. Carmichael, “Quantum teleportation of the temporal fluctuations of light”, Physical Review Letters **102**, 230501 (2009).

[36] J. Lee, J. Kim, and **H. Nha***, “Demonstrating higher-order nonclassical effects by photon-added classical states: realistic schemes”, J. Opt. Soc. Am. B **26** , 1363 (2009).

[35] R. Tahira, M. Ikram, **H. Nha*** and M. S. Zubairy, “Entanglement of Gaussian States using a beam splitter”, Physical Review A **79**, 023816 (2009).

[34] **H. Nha*** and M. S. Zubairy, “Uncertainty inequalities as entanglement criteria for negative partial-transpose states”, Physical Review Letters **101**, 130402 (2008).

[33] **H. Nha**, “Complete conditions for legitimate Wigner distributions”, Physical Review A **78**, 012103 (2008).

[32] **H. Nha**, “Linear optical scheme to demonstrate genuine multipartite entanglement for single-particle *W* states”, Physical Review A **77**, 062328 (2008).

[31] H. Jeong, J. Lee, and **H. Nha***, "Decoherence of highly-mixed macroscopic superpositions", J. Opt. Soc. Am. B **25**, 1025 (2008).

[30] **H. Nha**, "Unitary equivalence between ordinary intelligent states and general intelligent states", Physical Review A **76**, 053834 (2007).

[29] **H. Nha**, "Entanglement condition via su(2) and su(1,1) algebra using Schrodinger-Robertson uncertainty relation", Physical Review A **76**, 014305 (2007).

[28] **H. Nha*** and J. Kim, "Demonstrating multipartite inseparability of photonic W-type entangled states: linear optical scheme", Physical Review A **75**, 012326 (2007).

[27] **H. Nha*** and J. Kim, "Entanglement criteria via the uncertainty relations in su(2) and su(1,1) algebra: detection of non-Gaussian entangled states", Physical Review A **74**, 012317 (2006).

[26] **H. Nha*** and H. J. Carmichael, "Distinguishing two single-mode Gaussian states by homodyne detection: An information-theoretic approach", Physical Review A **71**, 032336 (2005).

[25] **H. Nha** and H. J. Carmichael, "Decoherence of a two-state atom driven by coherent light", Physical Review A **71**, 13805 (2005).

[24] **H. Nha** and H. J. Carmichael, "Entanglement within the Quantum Trajectory Description of Open Quantum Systems", Physical Review Letters **93**, 120408 (2004).

[23] **H. Nha*** and H. J. Carmichael, "Proposed Test of Quantum Nonlocality for Continuous Variables", Physical Review Letters **93**, 020401 (2004).

[22] H. J. Carmichael and **H. Nha**, "Vacuum fluctuations and the conditional homodyne detection of squeezed light", Journal of Optics B: Quantum and Semiclassical Optics **6**, S645 (2004).

[21] **H. Nha**, "Squeezing effect in a driven coupled-oscillator system: A dual role of damping", Physical Review A **67**, 23801 (2003).

[20] Y.-T. Chough, K. K. Kim, **H. Nha**, and K. An, "The Pulsation of the atomic wave packet", Journal of the Korean Physical Society **42**, 106 (2003).

[19] **H. Nha** and H. J. Carmichael, "Stochastic initiation of superradiance in a cavity: Decoherence through pseudo-spin exchange", Physical Review A **66**, 53806 (2002).

[18] **H. Nha***, J.-H. Lee, Y.-T. Chough, S.-W. Kim, and K. An, "Squeezing enhancement by damping in a driven atom-cavity system", Journal of the Physical Society of Japan **71**, 1615 (2002).

[17] **H. Nha***, J.-H.Lee, J. S. Chang, and K. An, "Atomic position localization via dual measurement", Physical Review A **65**, 33827 (2002).

[16] Y.-T. Chough, S.-H. Youn, **H. Nha**, S.-W. Kim, and K. An, "Dynamics of an atomic wave packet in a standing wave cavity field: A cavity-assisted single atom detection", Physical Review A **65**, 23810 (2002).

[15] **H. Nha***, Y.-T. Chough, W. Jhe, and K. An, "Dynamically induced atomic resonance fluorescence and cavity transmission spectra in a driven Jaynes-Cummings system", Physical Review A **63**, 63814 (2001).

[14] **H. Nha*** and K. An, "Cavity-damping-induced transitions in a driven atom-cavity system", Optics Letters **26**, 923 (2001).

[13] **H. Nha***, Y.-T. Chough, and K. An, "Single-photon state in a driven Jaynes-Cummings system", Physical Review A **63**, (R)10301 (2001).

[12] Y.-T. Chough, H.-J. Moon, **H. Nha**, and K. An, "Single-atom laser based on multiphoton resonances at far-off resonance in the Jaynes-Cummings ladder", Physical Review A **63**, 13804 (2001).

[11] Y.-T. Chough, **H. Nha**, and K. An, "Multiphoton spectroscopy of a driven Jaynes-Cummings system", Journal of the Physical Society of Japan **69**, 4060 (2000).

[10] **H. Nha***, Y.-T. Chough, and K. An, "Resonance fluorescence of a two-level atom in a colored vacuum", Physical Review A **62**, (R)21801 (2000).

[9] **H. Nha***, Y.-T. Chough, and K. An, "New features of the fluorescence spectra in the driven Jaynes-Cummings system", Journal of the Korean Physical Society **37**, 693 (2000).

[8] **H. Nha** and W. Jhe, "Cavity quantum electrodynamics near dielectric materials", Journal of the Korean Physical Society **32**, 342 (1998).

[7] J.-S. Song, S.-C. Kim, N. Kwon, **H. Nha**, and W. Jhe, "Enhanced fluorescence from two dye-doped microspheres due to dipole-dipole interaction", Journal of the Korean Physical Society **33**, 270 (1998).

[6] J. Yin, Y. Lin, K. Lee, **H. Nha**, H.-R. Noh, Y.-Z. Wang, K.-H. Oh, U.-C. Paek, and W. Jhe, "Guiding of atoms in a dark-hollow laser beam", Journal of the Korean Physical Society **33**, 362 (1998).

[5] **H. Nha** and W. Jhe, "Cavity quantum electrodynamics for a cylinder: Inside a hollow dielectric and near a solid dielectric cylinder", Physical Review A **56**, 2213 (1997).

[4] J. Kim, K. Lee, **H. Nha**, H. Noh, and W. Jhe, "Cold atoms in a hollow mirror trap", International Journal of Modern Physics B **11**, 3311 (1997).

[3] J. Kim, K. Lee, **H. Nha**, H. Noh, and W. Jhe, "Simple atom trap in a conical hollow mirror: Numerical analysis", Journal of the Korean Physical Society **30**, 387 (1997).

[2] **H. Nha** and W. Jhe, "Sisyphus cooling on the surface of a hollow-mirror atom trap", Physical Review A **56**, 729 (1997).

[1] **H. Nha** and W. Jhe, “Cavity quantum electrodynamics between parallel dielectric surfaces”, Physical Review A **54**, 3505 (1996).

10. Referees

(1) Prof. Howard Carmichael (h.carmichael@auckland.ac.nz), Physics Department, University of Auckland, NZ
(2) Prof. M. Suhail Zubairy (zubairy@physics.tamu.edu), Department of Physics, Texas A & M University, USA
(3) Prof. Myungshik Kim (m.kim@imperial.ac.uk), Dept. of Physics, Faculty of Natural Sciences, Imperial College, London, UK
(4) Prof. Gerard Milburn (milburn@physics.uq.edu.au), School of Physical Sciences, University of Queensland, Australia
(5) Prof. Kyungwon An (kwan@phya.snu.ac.kr), Department of Physics and Astronomy, Seoul National University, Korea
(6) Prof. Hassan Bazzi (hassan.bazzi@qatar.tamu.edu), Associate Dean for Research and Executive Director of Development, Texas A & M University at Qatar