Dileep V. Reddy

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Education:

Doctorate (Pursuing), **Physics**, University of Oregon
Master of Technology, **Communications and Signal Processing**, Indian Institute of Technology, Madras, 2009
Bachelor of Technology, **Electrical Engineering** with minor in Physics, Indian Institute of Technology, Madras

Academic Distinctions:

- Awarded the Science Literacy Program (SLP) fellowship for spring term 2014, and fall term 2013, University of Oregon.

- Awarded the Weiser Senior Teaching Assistant award (2012-13) and the Weiser General Physics Graduate Teaching Assistant Award (2010-11) by the Department of Physics, University of Oregon.

- Secured an All India Rank of 550 (top 0.15%) in the Joint Entrance Examination (IIT-JEE) conducted by the Indian Institute of Technology in the year 2004.

- Secured an All India Rank of 2896 and a State Rank of 67 in the general test, an All India Rank of 36 and a State Rank of 1 in Architecture, and an All India Rank of 722 and a State Rank of 5 in the Pharmacy section in the All Indian Engineering Entrance Examination (AIEEE), 2004. (State: Karnataka)

- Selected (among 120 nationwide) for the annual Summer Research Fellowship Program (SRFP) initiated by the Jawaharlal Nehru Institute of Advanced Scientific Research (JNCASR, Bangalore) in 2006, in the area of Physical Sciences.

- Secured a Rank of 349 in the 5th National Science Olympiad, India, held in 2003.

Publications:

1. **"Photonic temporal-mode multiplexing by quantum frequency conversion in a dichroic-finesse cavity,"** Dileep V. Reddy and M. G. Raymer, preprint arXiv:1708.01705 (2017).

2. **"Theory of noise suppression in Λ-type quantum memories by means of a cavity,"** J. Nunn, J. H. D. Munns, S. Thomas, K. T. Kaczmarek, C. Qiu, A. Feizpour, E. Poem, B. Brecht, D. J. Saunders, P. M. Ledingham, Dileep V. Reddy, M. G. Raymer, and I. A. Walmsley, Phys. Rev. A **96**, 012338 (2017).

3. **"Engineering temporal-mode-selective frequency conversion in nonlinear optical waveguides: From theory to experiment,"** Dileep V. Reddy and M. G. Raymer, Opt. Express **25**, 12952 (2017).

4. **"Observation of interaction of spin and intrinsic orbital angular momentum of light,"** Dashiell L. P. Vitullo, Cody C. Leary, Patrick Gregg, Roger A. Smith, Dileep V. Reddy, Siddharth Ramachandran, and M. G. Raymer, Phys. Rev. Lett. **118**, 083601 (2017).

5. **"Double-heralded generation of two-photon-states by spontaneous four-wave-mixing in the presence of noise,"** Roger A. Smith, Dileep V. Reddy, Dashiell L. P. Vitullo, and M. G. Raymer, Opt. Express **24**, 5809 (2016).

6. **"Photon temporal modes: A complete framework for quantum information science,"** B. Brecht, Dileep V. Reddy, C. Silberhorn, and M. G. Raymer, Phys. Rev. X **5**, 041017 (2015).

7. **"Temporal mode sorting using dual-stage quantum frequency conversion by asymmetric Bragg scattering,"** Jesper B. Christensen, Dileep V. Reddy, C. J. McKinstrie, K. Rottwitt, and M. G. Raymer, Opt. Express **23**, 23287 (2015).

8. **"Sorting photon wave packets using temporal-mode interferometry based on multiple-stage quantum frequency conversion,"** D. V. Reddy, M. G. Raymer, and C. J. McKinstrie, Phys. Rev. A **91**, 012323 (2015).

9. **"Efficient sorting of quantum-optical wave packets by temporal-mode interferometry,"** D. V. Reddy, M. G. Raymer, and C. J. McKinstrie, Opt. Lett. **39**, 2924 (2014).

10. **"Temporal mode selectivity by frequency conversion in second-order nonlinear optical waveguides,"** D. V. Reddy, M. G. Raymer, C. J. McKinstrie, L. Mejling, and K. Rottwitt, Opt. Express **21**, 13840 (2013).

Conference Presentations:

1. **"Observation of intrinsic spin-orbit interaction of light in few-mode optical fiber,"** Dashiell L. P. Vitullo, Cody C. Leary, Patrick Gregg, Roger A. Smith, Dileep V. Reddy, Siddharth Ramachandran, and Michael G. Raymer, FW2B.4 (FiO 2016).

2. **"Theory of loss in a distributed feedback cavity-enhanced single-photon SPDC source,"** Michael G. Raymer and Dileep V. Reddy, LF2E.4 (FiO 2016).

3. **"Verification of a heralded, two-photon Fock state with a gang of detectors,"** Roger A. Smith, Dileep V. Reddy, Dashiell L. P. Vitullo, and Michael G. Raymer, FTu3G.2 (FiO 2015).

4. **"Photon temporal modes as a complete framework for quantum information,"** Michael G. Raymer, Benjamin Brecht, Dileep V. Reddy, and Christine Silberhorn, FW3D.2 (FiO 2015).

5. **"Quantum information science with temporal modes,"** Benjamin Brecht, Dileep V. Reddy, Christine Silberhorn, and Michael G. Raymer, EB_2a_2 (CLEO 2015).

6. **"Efficient sorting of single-photon wave packets by temporal-mode interferometry,"** D. V. Reddy, M. G. Raymer, and C. J. McKinstrie, FTu4A.5 (FiO 2014).

7. **"Mode selectivity with quantum-state-preserving frequency conversion using four-wave mixing,"** Lasse Mejling, Dileep V. Reddy, Colin J. McKinstrie, Michael G. Raymer, and Karsten Rottwitt, Photonic Society Summer Topical Meeting Series (IEEE 2013).

8. **"Quantum-state-preserving Frequency Conversion Using Four-wave Mixing,"** Lasse Mejling Andersen, Dileep V. Reddy, Colin J. McKinstrie, Michael G. Raymer, and Karsten Rottwitt, NTu1A.2 (NLO 2013).

Masters Thesis:

2-D analysis of the difference in alternating current distributions between low-permeability and high-permeability conductors with irregular cross-sections.
Date of Submission: May 16th, 2009
Guide: Prof. Harishankar Ramachandran
Work Place: Department of Electrical Engineering, Indian Institute of Technology, Madras

Skills and Interests:

Physics:-
Quantum Optics, Field Theories, Quantum Information, Statistical Thermodynamics.

Technical Hobbies:-
Programming: Simulations, UI, games, hardware (microcontrollers)
Electronics: Tiny MCU projects, basic analog control circuits

Personal Website: `https://dileepvr.github.io`
Group blog: `http://rightshift.info`