
Education

Ph. D. (Physics), University of Massachusetts Lowell, Lowell, MA.	1996
M. Sc. (Physics), University of Bombay, Bombay, India.	1988
B. Sc. (Physics), Elphinstone College, Bombay, India.	1986

Professional Experience

Clinical Scientist, Cardiology

July 2007 –Jan 2009

Philips Healthcare, Cleveland, OH

- Responsible for liaising with clinical sites and implementing imaging protocols for cardiac PET scans. In particular, involved in implementing Rb-82 PET scans on the Gemini TF[®] 64 scanner which uses proprietary time-of-flight technology.
- Involved in the development and testing of new scan protocols, novel reconstruction techniques for cardiac studies as well as addressing clinical work-flow issues at client sites

Medical Physicist

Nov. 2006 – Feb. 2007

Ultrasound Research Laboratory Mayo Clinic, Rochester, MN

- Worked on clinical QC and acceptance testing protocols for ultrasound transducers

Resident, Clinical Medical Physics / Diagnostic Imaging

Sept. 2004 – Aug. 2006

Dept. of Radiology, Mayo Clinic, Rochester, MN

- **PET, PET/CT imaging** - First year rotation focused on learning the routine working of clinical PET scanners (GE *Advance*, *DLS*), system calibration, image quality issues etc. Project included -
 - **ECG gated cardiac PET** for viability and perfusion studies (FDG, ¹³N, ⁸²Rb) - Project was successfully completed with clinical implementation of gated cardiac scans
 - **Respiratory gated PET** for lung scans – Performed phantom experiments using Varian's RPM respiratory gating system and GE's Advantage 4D gating application to track motion due to patient's breathing; helped formulate protocol for respiratory gated patient studies
 - **Digital Mammography** - Second year rotation focused on use and characterization of a full field digital mammography system (Lorad *Selenia*) in terms of measurement of spatial resolution, noise, DQE etc. as well as routine image quality issues.
 - Rotation also included performing MQSA required yearly QC on about 10 screen-film mammography units and 2 stereotactic breast biopsy units under the supervision of a board certified staff physicist
Projects -
 - **Effect of geometric magnification in digital mammography** – An observer study investigating the effect of different magnification factors on edge definitions and perceptibility of calcifications in diagnostic views acquired on an FFDM system
 - **Other Modalities** – During the two years, also had an opportunity to learn, in a less specialized manner, the use of other modalities such as ultra-sound and CT
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Senior Scientist / Staff Scientist

June, 1997 – July 2004

Radiation Monitoring Devices, Watertown, MA 02172

- Developed methods to evaluate digital x-ray imaging systems in terms of measurement and interpretation of the Modulation Transfer Function (MTF), Noise Power Spectrum (NPS) and the Detective Quantum Efficiency (DQE)
- Developed cost effective methods using laser ablation and inductively coupled plasma (ICP) etching for pixellating heavy scintillators such as LSO, GSO, and transparent optical ceramics (TOC) as well as crystalline CsI, to improve contrast resolution and/or detection efficiency of imaging systems
- Developed CCD based digital x-ray / neutron imaging systems based on microstructured CsI(Tl) scintillator screens, LSO, and other phosphors for medical and non-medical applications such as
 - Large Area (4K x 7K pixel) CCD based System for digital mammography
 - CT, PET, and SPECT instrumentation for small animal imaging
 - Specialized phosphor screens (CsI(Tl)+Gd) for high resolution neutron imaging
 - High Speed (2300 fps) x-ray detector for time resolved diffraction studies in structural biology
 - Ultra high speed (10^5 fps) x-ray imaging system for the specialized DOD application
- Directed the development of beta imaging intraoperative probe for radio-guided surgery
- Authored several research grants and successfully obtained funding through federal SBIR programs

Lecturer / Instructor, for the following courses

1992 – 1997

University of Massachusetts Lowell, Dept. of Physics

Principles of Physics (junior/senior), Physics of Radiation and Nuclei (junior/senior), Physics Laboratory (freshman/junior), Technical Physics (freshman),

Research Assistant, Decay Heat Group

1992 – 1996

University of Massachusetts Lowell, Dept. of Physics

Doctoral dissertation involved the measurement of yields of fission-products following thermal neutron fission of ^{235}U , using high-resolution gamma-ray spectroscopy via beta-gamma coincidence

Technical Skills

- Clinical implementation of cardiac PET/CT imaging with Rb-82, N-13 and FDG tracers
- Evaluation of x-ray and digital imaging systems, including MQSA required QC on clinical FFDM systems in terms of spatial resolution, noise, light output and detective quantum efficiency
- Substantial experience in bidding successfully for federal research grants
- Experienced in the use detectors like HPGe, NaI(Tl), plastics, PMTs, etc., data acquisition using NIM, CAMAC electronics and analysis of spectral data; Operational knowledge and experience in working a 5.5 MeV Van de Graaff accelerator

Other Skills

- Excellent writing ability, fluent in making oral and written presentations
 - Personnel management experience
 - Excellent interpersonal and problem-solving skills, able to work efficiently in a team environment as well as independently
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Publications

See attached list

Patents

1. Pixellated Micro-columnar Film Scintillator - US Patent # 6921909
 2. Micro CT scanners incorporating internal gain charge-coupled devices - US Patent # 7352840
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Professional Societies

American Association of Physicists in Medicine
American Society of Nuclear Cardiology

References

Available upon request

Recent conference abstracts

Talks

- (1) R. F. Muzic, **S. Tipnis**, J. Kolthammer, P. F. Faulhaber, J. K. O'Donnell, Z. Lee and D. Gagnon; "Optimization the ^{82}Rb dose for myocardial perfusion imaging", presented at the Society of Nuclear Medicine Annual Meeting, June 14 – 18th, 2008, New Orleans, USA.
- (2) **S. Tipnis**, Z. Hu, D. Gagnon, J. K. O'Donnell; "Time-of-flight PET for Rb-82 cardiac perfusion imaging", presented at the Society of Nuclear Medicine Annual Meeting, June 14th – 18th, 2008, New Orleans, USA.

Posters

- (1) **Sameer Tipnis**, Beth A. Scheuler, Kenneth Fetterly, "Geometric magnification in digital mammography", presented at the American Association of Physicists in Medicine Annual Meeting, July 30th – Aug. 3rd, 2006, Orlando, USA.

Publications

- (1) Nagarkar, V.V.; **Tipnis, S.V.**; Shestakova, I.; Gaysinskiy, V.; Singh, B.; Paulus, M.J.; Entine, G. "A High-Speed Functional MicroCT Detector for Small Animal Studies", IEEE TNS Vol. **53**, (5), Oct. (2006) pp :2500 – 2505.
- (2) Sameer Tipnis, Beth Schueler and Ken Fetterly, "Geometric Magnification in Digital Mammography", presented at the 48th annual meeting of the American Association of Physicists in Medicine (AAPM), Orlando, FL July 30 – Aug. 3, 2006.
- (3) I. Shestakova, **S.V. Tipnis**, V. Gaysinskiy, J. Antal, L. Bobek, V.V. Nagarkar, "A New Sensor for Thermal Neutron Imaging", IEEE TNS Vol. **52** (4) August (2005).
- (4) V.V. Nagarkar, **S.V. Tipnis**, I. Shestakova, V. Gaysinskiy, B. Singh, M.J. Paulus, G. Entine, "A High Speed Functional MicroCT Detector for Small Animal Studies", in Proc. of IEEE 2004, Rome, Italy October 16-22, 2004.
- (5) Vivek V. Nagarkar, **Sameer V. Tipnis**, Kanai Shah, Irina Shestakova and Simon R. Cherry, "A High Efficiency Pixelated Detector for Small Animal PET", IEEE Trans. Nucl. Sci., Vol. **51**(3) pp 801 - 804 June (2004).
- (6) **S. V. Tipnis**, V.V. Nagarkar, I. Shestakova, V. Gaysinskiy, G. Entine, M.P. Tornai, and B.C. Stack, Jr., "Feasibility of a Beta-Gamma Digital Imaging Probe for Radioguided Surgery", IEEE Trans. Nucl. Sci., Vol **51**(1) pp 110 – 116 (2004).
- (7) S.R. Miller, S.V. Tipnis, I. Shestakova, V.V. Nagarkar, "High-performance scintillator screen for medical imaging applications", Proc. of SPIE, 5541, pp. 133-140, (2004).
- (8) V. V. Nagarkar, **S.V. Tipnis**, S.R. Miller A. Lempicki, C. Brecher, P. Szupryczynski, and H. Lingertat, "A New Scintillator For Digital X-Ray Radiography", IEEE Trans. Nucl. Sci., Vol. **50**(3) pp 297 - 300 June (2003).
- (9) V.V. Nagarkar, **S.V. Tipnis**, V. R. Gaysinskiy and S. R. Miller, "High Speed Digital Radiography Using Structured CsI(Tl) Screens" Nucl. Instr. Methods Phys. Res. B, **213**, pp 476 – 480 (2003).
- (10) V. V. Nagarkar, S.R. Miller, **S.V. Tipnis**, A. Lempicki, C. Brecher and H. Lingertat, "A New Large Area Scintillator Screen for X-ray Imaging" Nucl. Instr. Methods Phys. Res. B, **213**, pp 250-254 (2003).
- (11) Vivek V. Nagarkar, **Sameer V. Tipnis**, Valeriy B. Gaysinskiy, Stuart R. Miller, Andrew Karellas, Srinivas Vedantham, "New Design of a Structured CsI(Tl) screen for Digital Mammography", Proc. of SPIE, Physics of Medical Imaging, Vol. **4**, No. 21, pp 541 – 546, 2003.
- (12) S.R. Miller, V.V. Nagarkar, S.V. Tipnis, I. Shestakova, C. Brecher, A. Lempicki, and H. Lingertat, "Lu₂O₃:Eu scintillator screen for x-ray imaging", Proc. of SPIE, 5199, 167-172, 2003
- (13) **S. V. Tipnis**, V.V. Nagarkar, V. Gaysinskiy, S.R. Miller, and I. Shestakova, "High Speed X-Ray Imaging Camera for Time Resolved Diffraction Studies", IEEE Trans. Nucl. Sci., Vol. **49**(5) pp 2415 - 2419 Oct.(2002)
- (14) A. Lempicki, C. Brecher, P. Szupryczynski, H. Lingertat, V. Nagarkar, **S. Tipnis**, and S. Miller, "A New Lutecia-based Ceramic Scintillator for X-ray Imaging", Nucl. Instr. Methods Phys. Res. A, **488**, pp 579-590 (2002).
- (15) X. Yang, J. Hopwood, **S. Tipnis**, V. Nagarkar, V. Gaysinskiy, "Plasma Etching of Cesium Iodide", Jour. Vac. Sci. Tech. A, Vol. **20**, issue 1, pp 132 – 137, Jan. 2002.
- (16) **Sameer Tipnis**, Vivek V. Nagarkar, Stuart Miller, Valeriy Gaysinskiy, "A Comparison Study of CsI(Tl) Screens for Macromolecular Crystallography", Proc. of SPIE, Vol. **4508**, pp 15 - 19 (2001).
- (17) Vivek V. Nagarkar, **Sameer Tipnis**, Stuart Miller, Valeriy Gaysinskiy, Alex Lempicki, Charles Brecher, "A High Resolution, High Speed CT/Radiography System for NDT of Adhesive Bonded Composites", Proc. SPIE Vol. **4503**, pp 265-273 (2001).
- (18) **Sameer Tipnis**, Vivek V. Nagarkar, Stuart Miller, Valeriy Gaysinskiy and Leena Hamberg, "A High Speed CCD camera for Physiologic X-ray Studies", Presented at Hi-Res 2001 Conference, Sept. 9- 11, Rockville, MD.
- (19) V.V. Nagarkar, **S.V. Tipnis**, V. Gaysinskiy, Y. Klugerman, M. R. Squillante and G. Entine, "Structured Lil Scintillator for Thermal Neutron Imaging", IEEE Trans. Nucl. Sci., Vol. **48**(6) pp 2330 - 2334 Dec 2001.

- (20)MP Tornai, CN Archer, AG Weisenberger, R Wojcik, V Popov, CE Keppel, S Majewski, CS Levin, **S. V Tipnis**, VV Nagarkar, "Investigation of microcolumnar scintillators on an optical fiber coupled compact imaging system" IEEE Trans. Nucl. Sci., Vol. **48**(3) Part 2, pp 637-644, June 2001.
- (21)M. Woodring, D. Souza, **S. Tipnis**, P. Waer, M. Squillante, G. Entine, K. P. Ziock, "Advanced radiation imaging of low-intensity gamma-ray sources", Nucl. Instr. Methods Phys. Res. A **422**, 709-712 (1999).
- (22)**S. Tipnis**, V. Nagarkar, S. Miller, V. Gaysinskiy, Y. Klugerman, P. O'Dougherty, "Large Area CCD based Imaging System for Mammography", Conf. Record, IEEE Trans. Nucl. Sci., Vol.**2**, pp 1043-1046, IEEE-MIC Conf., 1999.
- (23)Nagarkar, V.V., **Tipnis, S.V**, Gupta, T.K., Miller, S., Gaysinskiy, V., Klugerman, M., Squillante, M.R., Entine, G., and Moses, W.W., "High Speed X-ray Imaging Camera Using Structured CsI(Tl) Scintillator", IEEE/Trans.Nucl.Sci.,**46** (3) pp 232-236 (1999).
- (24)Betsy A. Dowd, Graham H. Campbell, Robert B. Marr, Vivek Nagarkar, **Sameer Tipnis**, Lisa Axe, D. Peter Siddons, "Developments in synchrotron x-ray computed microtomography at the National Synchrotron Light Source". Proceedings, SPIE Conference 1999, Denver, CO, July 26 – 30, 1999.
- (25)V. V. Nagarkar, **S. Tipnis**, S.R. Miller, V. Gaysinskiy, Y. Klugerman, M.R. Squillante, G. Entine, and W. W. Moses, "High Speed X-Ray Imaging System For Synchrotron Sources", presented at the NIH Biomed. Imag. Symp. (BECON), June, (1999).
- (26)**S. V. Tipnis**, J. M. Campbell, G. P. Couchell, S. Li, H. V. Nguyen, D. J. Pullen, W. A. Schier, E. H. Seabury and T. R. England, "Yields of short-lived fission products following $^{235}\text{U}(n_{\text{th}}, f)$ ", Phys. Rev. C, **58** (2), 905(1998).
- (27)"Beta Particle Spectrometer for Measuring Aggregate Beta Spectra Following Fission"; W.A. Schier, J.M. Campbell, G.P. Couchell, S. Li, H.V. Nguyen, D.J. Pullen, E.H. Seabury and S.V. Tipnis, *Nucl. Instr. Meth. for Phys. Res.* **A404** pp 173 - 180 (1998)
- (28)H. V. Nguyen, J. M. Campbell, G. P. Couchell, S. Li, D. J. Pullen, W. A. Schier, E. H. Seabury, **S. V. Tipnis**, "Programs in C for Parameterizing Measured 5" x 5" NaI Gamma Response Functions and Unfolding of Continuous Gamma Spectra", Computer Physics Communications, **93**, 303 (1996).
- (29)H.V. Nguyen, S. Li, J.M. Campbell, G.P. Couchell, D.J. Pullen, W.A. Schier, E.H. Seabury, **S.V. Tipnis** and T.R. England, "Decay Heat Measurements following Neutron Induced Fission of ^{235}U and ^{239}Pu ", Proc. Intl. Conf. on Nuclear Data for Science and Technology, Trieste, Italy May 19 - 23, 1997.
- (30)E.H. Seabury, S. Li, J.M. Campbell, G.P. Couchell, H.V. Nguyen, D.J. Pullen, W.A. Schier, **S.V. Tipnis** and T.R. England, "Decay Heat Measurements following Neutron Induced Fission of ^{238}U ", Proc. Intl. Conf. on Nuclear Data for Science and Technology, Trieste, Italy May 19 - 23, 1997.
- (31)J.M. Campbell, G.P. Couchell, S. Li, H.V. Nguyen, D.J. Pullen, W.A. Schier, E.H. Seabury, **S.V. Tipnis** and T.R. England, "Yields of Short-lived Fission Products following ^{238}U Fast Fission", Proc. Intl. Conf. on Nuclear Data for Sci. and Tech., Trieste, Italy May 19 - 23, 1997.
- (32)W. A. Schier, J. M. Campbell, G. P. Couchell, S. Li, H. V. Nguyen, D. J. Pullen, E. H. Seabury, **S. V. Tipnis** and T. R. England, "Energy Distributions of Gamma and Beta Decay Heat as a Function of Time for $^{235}\text{U}(n_{\text{th}}, f)$ ", Proc. Intl. Conf. on Nucl. Data for Sci. & Tech., Gatlinburg, TN, May 9 -13, 1994, pp. 970(1994).
- (33)G. P. Couchell, J. M. Campbell, S. Li, H. V. Nguyen, D. J. Pullen, W. A. Schier, E. H. Seabury, **S. V. Tipnis** and T. R. England, "A Study of Gamma-Ray and Beta Particle Decay Heat following Thermal Neutron Induced Fission Of ^{235}U ". Proc. Intl. Conf. on Nucl. Data for Sci. & Tech., Gatlinburg, TN, May 9 -13, 1994, pp. 966(1994).
- (34)D. J. Pullen, J. M. Campbell, G. P. Couchell, S. Li, H. V. Nguyen, W. A. Schier, E. H. Seabury, **S. V. Tipnis** and T. R. England, "High-Resolution Gamma-Ray Spectra for $^{235}\text{U}(n, ff)$ ", Proc. Intl. Conf. on Nucl. Data for Sci. & Tech., Gatlinburg, TN, May 9 -13, 1994, pp. 962(1994).

