ANUPRIYA JAYAKUMAR
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VISA STATUS: Permanent Resident (No VISA sponsorship required).

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https://priyakalyan.github.io

WORK EXPERIENCE

Post-Doctoral Research Associate, Aug 2012-Dec 2014
Prof. Boris Blinov
University of Washington, Seattle, WA

EDUCATIONAL QUALIFICATIONS

Ph.D. (Physics), 2007–2012
Prof. M. Pattabiraman
Indian Institute of Technology Madras, Chennai, India

M.S (Physics), 2005–2007; **Gold medalist, First rank in Department of Physics**
Presidency College (Madras University), Chennai, India

B.S (Physics), 2002–2005; **Gold medalist, First rank in Department of Physics**
Meenakshi College for Women (Madras University), Chennai, India

COURSES TAKEN FROM 2015-2018

https://priyakalyan.github.io/Courses.html

SCIENTIFIC SKILLS

Data Analysis | Spectroscopy | Electronics | Mathematical Modelling | Machining | Optical alignment | Fiber optics coupling | Vacuum Techniques |

TECHNICAL SKILSS/PROGRAMMING

R | Matlab/Octave | MYSQL | Python | Mathematica | IGOR | Origin | HTML/CSS | Inkscape | LaTex | Microsoft office (WORD, EXCEL, POWERPOINT) |

OTHER EXPERIENCES

- Helped in writing the grant for the parity non-conservation experiment proposal.
- Worked as an instructor for the summer quarter 2014 for the course “Introductory mechanics” at University of Washington, Seattle.
- Tutored mechanics labs, waves and optics labs for a year in University of Washington, Seattle.
- Tutored classical mechanics, general physics and electronics labs in Indian Institute of Technology Madras, India for three years.

RESEARCH EXPERIENCE

2012–2014; Department of Physics, University of Washington, Seattle, Washington, US

In my post-doctoral research work at UW, I had the opportunity to work on two different fields:

1. Ba ion spectroscopy – Precision Spectroscopy lab (Dr. Boris Blinov)

- Polarization rotation measurement of the $6S_{1/2} \leftrightarrow 5D_{3/2}$ magnetic dipole transition moment *M1*, in Ba^{+}: The motivation behind this study was to make a precise measurement of M1 as this turns out to be the leading systematic error in parity nonconservation (PNC) measurement. This measurement is therefore an essential step toward a PNC experiment in the ion that will also test the current many-body theory.
- Stress induced birefringence: As a side project, I had explored the effect of the stress induced birefringence across the silica viewports on the 2051 nm beam polarization using crossed polarizer arrangement, as precise control of the beam polarization is a general concern in trapped ion PNC measurement. I had characterized the corresponding optical axis orientation and the phase retardation associated with it using the Jones matrix formalism. The data was analyzed using Origin software.

2. Yb atom spectroscopy – Ultra cold atoms and molecules (Dr. Subhadeep Gupta)

- Dual-axis Ytterbium (Yb) vapor cell for simultaneous laser frequency stabilization on disparate optical transitions: I had constructed and developed a dual-axis Ytterbium (Yb) vapor cell to simultaneously address the two laser cooling transitions in Yb at wavelengths 399 nm and 556 nm, thereby enabling the simultaneous observation of saturated absorption spectroscopy for both these transitions and demonstrated stabilized laser frequency over a full day. This finds applications in laser cooling experiments.

2007–2012; Department of Physics, Indian Institute of Technology Madras, Chennai, India (Dr. M. Pattabiraman)

- The influence of the Laguerre Gaussian (LG) beam on the atomic coherence and the associated spectroscopic phenomena like nonlinear magneto optical rotation (NMOR), Hanle electromagnetically induced transparency (EIT) and electromagnetically induced absorption (EIA) was not well known previously. My graduate thesis preliminarily focused on the interaction of the Rubidium (Rb) atoms with a coherent LG optical field with spatially varying phase factor and mode amplitude. I had designed and executed detailed computational and experimental studies to understand the effect of the LG field on the Zeeman coherences arising as a result of such an atom-field interaction.
- For more information on the experimental and computational details, results/summary and applications:
  https://priyakalyan.github.io/Docs/Thesis_Anupriya.pdf
- I also had the opportunity to collaborate and work at premier research institutes like IISc (Indian institute of science, Bangalore, India) and RRI (Raman Research institute, Bangalore, India) where I was involved in the construction of an A-B differential amplifier circuit and extended cavity diode laser (ECDL) to perform the above mentioned experimental studies.

PUBLICATIONS @ https://priyakalyan.github.io/Publications.html

CONFERENCES @ https://priyakalyan.github.io/Conferences.html