

DEEPAK KUMAR BATHEJA

Institute of Physics, Czech Republic.

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EXPERIENCE

Department of High Power Systems (PALS facility), Institute of Physics, Czech Republic.

Research experience - Scientist

January 2021 - .

Department of ELI Beamlines, Institute of Physics, Czech Republic.

Research experience - Applied Physicist

November 2013 - December 2020.

- My current research interests in long pulse laser matter interaction include the development of an all optical scheme to generate Mega Gauss level magnetic fields and laboratory astrophysics studies of shocks (radiative shocks, and Alfvénic shocks). I have led experiments at the PALS laser facility for such experiments: using macroscopic capacitor coil targets for magnetic field generation (2016) and investigating radiative and Alfvénic shocks (2018).
- My current research interests in short pulse laser matter interaction include the coupling of high intensity laser to electrons and the subsequent transport of electrons through solid targets. On these topics, I have led the following experimental campaigns: (a) Laser absorption at high intensity (Texas PW laser 2020, PEARL laser 2018), (b) Pre-plasma effect on laser coupling and bremsstrahlung generation (SGII upgrade laser 2019), and (c) Development of a forward Compton scattering hard X-ray spectrometer (ELBE linear accelerator 2016). I have led in-house research activities to support such experiments. These include: (a) Development of ellipsoidal plasma mirrors for focusing high power lasers with f-number below unity, (b) development of high resolution achromatic imaging system for measuring coherent transition radiation from relativistic electrons generated in such experiments, and (c) development of thick pixelated ZnCdTe detectors for direct detection of hard X-rays. Additionally, I have contributed to related experiments on ion acceleration (Vulcan PW 2014, Titan laser facility 2015) and γ -ray flash from ultra relativistic laser matter interaction (J-Karen laser 2019).

Managerial (technology development) experience - Applied Physicist

November 2013 - December 2020.

- Mentored two junior researchers (post doctoral fellows).
- Co-ordinated the design, procurement and installation of the Plasma Physics Platform - the largest vacuum chamber made from Aluminium for high intensity laser plasma research.
- Co-ordinated the procurement of various diagnostics and detectors for laser matter interaction experiments at ELI Beamlines.
- Contributed to planning and management for developing the high intensity and plasma physics research area of ELI Beamlines.
- Co-ordinated the development of a 30 kJ capacitor bank for generating pulsed magnetic fields for laser plasma experiments.

Johns Hopkins University, Baltimore, Maryland USA.

Research Experience - Post Doctoral Fellow

December 2009 - December 2012.

- Installed and operated a transmission grating based imaging spectrometer on NSTX. The survey spectrometer measured charge exchange and collisionally excited radiation from impurity ions in the range of 30 Å to 700 Å. Developed a spectral simulation package to predict the line intensities and spatial distributions measured by the spectrometer.
- Developed and installed diagnostics on a table top reflex plasma discharge experiment. The diagnostics include visible spectroscopy, VUV spectroscopy and a transmission grating based imaging spectrometer (in VUV and XUV). The diagnostics confirmed the presence of non-Maxwellian tail (~ 100 eV) in electron energy distribution. Modeled the charge state distribution and emission to confirm the presence of the non-Maxwellian tail.
- Developed space resolved radiometers in XUV and VUV with direct CCD detection to provide fast (~ 10 ms) emission measurements from divertor like plasma. The radiometers were used on the PISCES-A experiment at University of California, San Diego for characterizing the confinement time and electron temperature in the experiment.

Teaching Experience - Post Doctoral Fellow January 2011
• Taught a three week inter-session course on “A survey of nuclear energy” in January 2011. The course material included introduction to nuclear physics, fission reactor design, nuclear safety, nuclear waste management and an introduction to nuclear fusion. The course also included a field trip to Peach Bottom Nuclear power plant and a simulated control room.

Nonlinear Ion Dynamics, Panorama City, California USA.

Work Experience - Associate Scientist August 2009 - September 2009
• Conducted pulsed plasma experiments to achieve isotope enrichment. Details excluded because of confidentiality constraints.

Saban Research Institute, Childrens Hospital Los Angeles, Los Angeles, California USA.

Work Experience - Consultant June - August 2009 and September - December 2009
• Designed and implemented an intrinsic signal imaging system to acquire and measure the neural response to periodic visual stimuli. Developed the software for high speed data acquisition (60 MB/s) and subsequent analysis.

California Institute of Technology, Pasadena, California USA.

Research Experience - Graduate Research Assistant September 2003 - June 2009
• Conducted pulsed plasma experiments (time scale $\sim 10 \mu\text{s}$) with diagnostics including high voltage probe, Rogowski coil, high speed X-ray diodes, magnetic probe array, density interferometer, time resolved spectroscopy and high speed imaging.
• Experimentally investigated the effect of plasma gun current on the flow velocity of plasma jet during the spheromak formation stage of the Caltech Spheromak Experiment. Modeled the non equilibrium plasma flow using MHD.
• Characterized the effect of ignitron impedance on the discharge circuit of Caltech Spheromak Experiment.
• Built a VUV/Soft X-ray imaging system to study magnetic reconnection in plasma flux tubes.
• Built a novel (high SNR) He-Ne interferometer to measure plasma density for the Caltech Spheromak Experiment.

Teaching Experience - Graduate Teaching Assistant September 2004 - May 2008
• Teaching Assistant for the graduate course on Plasma Physics. 2006-2008
• Teaching Assistant for the undergraduate lab on Plasma Resonance Cones. 2004-2006
(Rebuilt the repetitive plasma experiment with modern hardware and technologies.)

The Golem Group, LLC, Santa Monica, California USA.

Work Experience - Software Developer December 2006 - November 2007
• Starting member of the Golem group, LLC which received a US Dollar 1 million funding from Defense Advanced Research Projects Agency (DARPA) for developing an autonomous vehicle for the Urban Challenge, 2007.
• Modified the state estimation software from the Golem Group/UCLA’s DARPA grand challenge entry to suit the needs for the Urban Challenge race.
• Implemented a SLAM (Simultaneous localization and mapping) algorithm to use LADAR (Laser detector and ranging) data for building a local map around the vehicle and using it to feedback on the vehicle’s state estimation.

The Golem Group / University of California, Los Angeles, California USA.

Work Experience - Software Developer October 2004 - October 2005
• Member of a team collaboration between The Golem Group and University of California, Los Angeles (UCLA) for developing an autonomous vehicle for the Grand Challenge, 2005.
• Implemented an extended Kalman filter to estimate the state of an autonomous vehicle using GPS, steering and velocity data as inputs.

Texas A&M University, College Station, Texas USA.

Research Experience - Graduate Researcher November 2001 - June 2003
• Proposed a spectrum matching channel coding scheme for partial response channels. Analyzed the performance of these codes using Matlab simulations and showed that they are asymptotically optimal for low rate communications.

Teaching Experience - Graduate Teaching Assistant May 2002 - April 2003
• Teaching Assistant for the graduate course on Modulation Theory. Spring 2003
• Teaching Assistant for the undergraduate course on Linear Circuit Analysis. Fall 2002
• Conducted the undergraduate Microprocessor Systems Design Lab. Summer 2002

EDUCATION

California Institute of Technology, Pasadena, California, USA.

- PhD, Applied Physics, March 2009.
- Doctoral Thesis: Experimental investigations of magnetohydrodynamic plasma jets.
- Advisor: Paul M. Bellan
- M.S., Applied Physics, June 2004.

Texas A&M University, College Station, Texas, USA.

- M.S., Electrical Engineering (Information Theory and Channel Coding), August 2003.
- Master's Thesis: Optimal Finite Alphabet Sources Over Partial Response Channels
- Advisors: Scott L. Miller and Krishna R. Narayanan

Indian Institute of Technology-Bombay, Mumbai, India.

- B.Tech., Electrical Engineering, August 2001.
- Senior Year Thesis: Evoked Potential Estimation in Time Frequency Domain
- Advisors: Vikram M. Gadre and Suresh R. Devasahayam

Tata Institute for Fundamental Research, Mumbai, India.

- Nurture Program in Mathematics conducted by National Board for Higher Mathematics, India. 1999-2001.

JOURNAL PUBLICATIONS (CORRESPONDING AUTHOR OR PRINCIPAL INVESTIGATOR)

- H. Bohlin, F.-E. Brack, M. Cervenak, T. Chodukowski, J. Cikhardt, J. Dostál, R. Dudžák, J. Hubner, W. Huo, S. Jelinek, D. Klír, F. Kroll, M. Krupka, M. Krús, T. Pisarczyk, Z. Rusiniak, U. Schramm, T.-H. Nguyen-Bui, S. Weber, A. Zaráš-Szydłowska, K. Zeil, **D. Kumar**, T. Schlegel, and V. Tikhonchuk. Radiative characterization of supersonic jets and shocks in a laser-plasma experiment. *Accepted*. *Plasma. Phys. Control. Fusion.* <http://arxiv.org/abs/2009.11567>.
- S. Singh, C. D. Armstrong, N. Kang, L. Ren, H. Liu, N. Hua, D. R. Rusby, O. Klimo, R. Versaci, Y. Zhang, M. Sun, B. Zhu, A. Lei, X. Ouyang, L. Lancia, A. L. Garcia, A. Wagner, T. Cowan, J. Zhu, T. Schlegel, S. Weber, P. McKenna, D. Neely, V. Tikhonchuk and **D. Kumar**. Bremsstrahlung emission and plasma characterization driven by moderately relativistic laser-plasma interactions. *Plasma Phys. Control. Fusion.*, **63**, 035004 (2021).
- **Deepak Kumar**, Sushil Singh, Hamad Ahmed, Roman Dudžák, Jan Dostál, Tomasz Chodukowski, Lorenzo Giuffrida, Prokopis Hadjisolomu, Thomas Hodge, Libor Juha, Eduard Krouský, Miroslav Krús, Yuanzhe Li, Piotr Lutoslawski, Massimo De Marco, Miroslav Pfeifer, Zofia Rusiniak, Jiří Skála, Jiří Ullschmeid, Tadeusz Pisarczyk, Marco Borghesi, Satyabrata Kar. Magnetic field generation using single-plate targets driven by kJ-ns class laser. *Plasma Phys. Control. Fusion.*, **62**, 125024 (2020).
- **Deepak Kumar**, Michal Šmíd, Sushil Singh, Alexander Soloviev, Hannes Bohlin, Konstantin Burdonov, Gashaw Fente, Alexander Kotov, Livia Lancia, Vit Lédl, Sergey Makarov, Michael Morrissey, Sergey Perevalov, Denis Romanovsky, Sergey Pikuz, Ryousuke Kodama, David Neely, Paul McKenna, Tomáš Laštovička, Mikhail Starodubtsev, Stefan Weber, Motoaki Nakatsutsumi, Julien Fuchs. Alignment of solid targets under extreme tight focus conditions generated by an ellipsoidal plasma mirror. *Matter and Radiation at Extremes*, **4**, 024402 (2019).
- S. Singh, R. Versaci, A. Laso Garcia, L. Morejon, A. Ferrari, M. Molodtsova, R. Schwengner, **D. Kumar**, T. Cowan. Compact high energy x-ray spectrometer based on forward Compton scattering for high intensity laser plasma experiments. *Review of Scientific Instruments*, **89**, 085118 (2018).
- S. Singh, T. Slavicek, R. Hodak, R. Versaci, P. Pridal, **D. Kumar**. Absolute calibration of imaging plate detectors for electron kinetic energies between 150 keV and 1.75 MeV. *Review of Scientific Instruments*, **88**, 075105 (2017).
- **D. Kumar**, A. Englesbe, M. Parman, D. Stutman, M. Finkenthal. Charge state distribution and emission characteristics in a table top reflex discharge - Effect of ion confinement and electrons accelerated across the sheath. *Phys. Plasmas*, **22**, 113504 (2015).
- **D. Kumar** M. Parman, D. Stutman and M. Finkenthal. Transmission grating based imaging spectrometers in the XUV and VUV for various plasmas. *Journal of Instrumentation*, **8**, T10002 (2013).
- **D. Kumar**, D. J. Clayton, M. Parman, D. Stutman, K. Tritz, M. Finkenthal. Dual transmission grating based imaging radiometer for tokamak edge and divertor plasmas. *Rev. Sci. Instrum.*, **83**, 10E511 (2012).
- **Featured Article:** **D. Kumar**, M. Finkenthal, D. Stutman, R. E. Bell, D. J. Clayton, A. Diallo, B.

- P. LeBlanc, M. Podesta and K. Tritz. Impurity analysis of NSTX using a transmission grating-based imaging spectrometer. *Plasma Phys. Control. Fusion*, **54**, 065010 (2012).
- **D. Kumar**, D. Stutman, K. Tritz, M. Finkenthal, C. Tarrio, and S. Grantham. Transmission grating based extreme ultraviolet imaging spectrometer for time and space resolved impurity measurements. *Review of Scientific Instruments*, **81**, 10E507 (2010).
 - **D. Kumar**, A. Moser, and P. Bellan. Energy efficiency analysis of the discharge circuit of Caltech spheromak experiment. *IEEE Trans. Plasma Sci.*, **38**, 1 (2010).
 - **D. Kumar**, and P. Bellan. Non-equilibrium Alfvénic plasma jets associated with spheromak formation. *Phys. Rev. Lett.*, **103**, 105003(2009).
 - **D. Kumar**, and P. Bellan. Heterodyne interferometer with unequal path lengths. *Review of Scientific Instruments*, **77**, 083503 (2006).

JOURNAL PUBLICATIONS (CONTRIBUTING AUTHOR)

- S. Borneis, T. Laštovička, M. Sokol, T.-M. Jeong, F. Condamine, O. Renner, V. Tikhonchuk, H. Bohlin, A. Fajstavr, J. C. Hernandez, N. Jourdain, **D. Kumar**, D. Modřanský, A. Pokorný, A. Wolf, S. Zhai, G. Korn, S. Weber. Design, installation and commissioning of the ELI-Beamlines high-power, high repetition-rate HAPLS laser beam transport system to P3. *Submitted*. High Power Laser Science and Engineering.
- N. Jourdain, U. Chaulagain, M. Havlík, D. Kramer, **D. Kumar**, Irena Majerová, V. Tikhonchuk, G. Korn, S. Weber. The L4n laser beamline of the P3-installation: towards high-repetition rate high-energy density physics at ELI-Beamlines. *Matter and Radiation at Extremes*, **6**, 015401 (2021).
- Hamad Ahmed, Prokopis Hadjisolomou, Kealan Naughton, Aaron Alejo, Stephanie Brauckmann, Giada Cantono, Simon Ferguson, Mirela Cerchez, Domenico Doria, James Green, Deborah Gwynne, Thomas Hodge, **Deepak Kumar**, Andrea Macchi, Rajendra Prasad, Oswald Willi, Marco Borghesi and Satyabrata Kar. High energy implementation of coil-target scheme for guided re-acceleration of laser-driven protons. *Scientific Reports*, volume 11, article number: 699 (2021).
- S. Weber, S. Bechet, S. Borneis, L. Brabec, M. Bučka, E. Chacon-Golcher, M. Ciappina, M. DeMarco, A. Fajstavr, K. Falk, E. R. Garcia, J. Grosz, Y. J. Gu, J. C. Hernandez, M. Holec, P. Janečka, M. Jantač, M. Jirka, H. Kadlecova, D. Khikhlukha, O. Klimo, G. Korn, D. Kramer, **D. Kumar**, T. Lastovička, P. Lutoslawski, L. Morejon, V. Olšovcová, M. Rajdl, O. Renner, B. Rus, S. Singh, M. Šmid, M. Sokol, R. Versaci, R. Vrána, M. Vranic, J. Vyskočil, A. Wolf, Q. Yu. P3: An installation for high-energy density plasma physics and ultra-high intensity laser-matter interaction at ELI-Beamlines. *Matter and Radiation at Extremes*, **2**, 4, 149-176 (2017).
- Y. J. Gu, O. Klimo, **D. Kumar**, Y. Liu, S. K. Singh, T. Zh. Esirkepov, S. V. Bulanov, S. Weber and G. Korn. Fast magnetic field annihilation in the relativistic collisionless regime driven by two ultra-short high-intensity laser pulses. *Phys. Rev. E*, **93**, 013203 (2016).
- Y. J. Gu, O. Klimo, D. Kumar, S. V. Bulanov, T. Zh. Esirkepov, S. Weber, and G. Korn. Fast magnetic field annihilation driven by two laser pulses in underdense plasma. *Phys. Plasmas*, **22**, 103113 (2015).
- M. Ono, M. A. Jaworski, R. Kaita, H.W. Kugel, J.-W. Ahn, J. P. Allain, M.G. Bell, R.E. Bell, D.J. Clayton, J.M. Canik, S. Ding, S. Gerhardt, T.K. Gray, W. Guttenfelder, Y. Hirooka, J. Kallman, S. Kaye, **D. Kumar**, B.P. LeBlanc, R. Maingi, D.K. Mansfield, A. McLean, J. Menard, D. Mueller, R. Nygren, S. Paul, M. Podesta, R. Raman, Y. Ren, S. Sabbagh, F. Scotti, C. H. Skinner, V. Soukhanovskii, V. Surla, C.N. Taylor, J. Timberlake, L.E. Zakharov and the NSTX Research Team. Recent progress in the NSTX/NSTX-U Lithium program and prospects for reactor-relevant liquid-Lithium based divertor development. *Nuclear Fusion*, **53**, 113030 (2013).
- E. M. Hollmann, C. Brandt, B. Hudson, D. Kumar, D. Nishijima, and A. Yu. Pigarov. Investigation of mechanisms for He-I emission radial profile broadening in a weakly-ionized cylindrical helium plasma with recombining edge. *Phys. Plasmas*, **20**, 093303 (2013).
- D. J. Clayton, M. A. Jaworski, **D. Kumar**, D. Stutman, M. Finkenthal and K. Tritz. Divertor electron temperature and impurity diffusion measurements with a spectrally resolved imaging radiometer. *Rev. Sci. Instrum.*, **83**, 10D521 (2012).
- D. J. Clayton, K. Tritz, D. Stutman, M. Finkenthal, S. M. Kaye, **D. Kumar**, B. P. LeBlanc, S. Paul and S. A. Sabbagh. Multi-energy soft-x-ray technique for impurity transport measurements in the fusion plasma edge. *Plasma Phys. Control. Fusion*, **54**, 105022 (2012).

- R. Mason, J. Radford, **D. Kumar**, R. Walters, B. Fulkerson, E. Jones, D. Caldwell, J. Meltzer, Y. Alon, A. Shashua, H. Hattori, E. Frazzoli, and S. Soatto. The Golem Group/UCLA autonomous ground vehicle in the DARPA grand challenge, *Journal of Field Robotics*, special issue on DARPA grand challenge 2005, **23**, 8, (2006).

REFEREED CONFERENCE PROCEEDINGS

- P. M. Bellan, **D. Kumar**, E. V. Stenson, S. K. P. Tripathi, G. S. Yun, and A. L. Moser. Laboratory simulations of astrophysical jets and solar coronal loops: new results. *AIP Conference Proceedings* Volume 1242 pp. 156-163. Plasmas In The Laboratory And The Universe: Interactions, Patterns, and Turbulence, Como (Italy), 1-4 December 2009.
- E. Jones, B. Fulkerson, E. Frazzoli, **D. Kumar**, R. Walters, J. Radford, and R. Mason. Autonomous off-road driving in the DARPA grand challenge. In *Proc. of the IEE/ION Position, Location, and Navigation Symp.*, Apr 2006.
- S. V. Bonde, **D. Kumar**, S. R. Devasahayam, and V. M. Gadre. Nonparametric waveform estimation in time and time-frequency domain an application to visual evoked potentials. In *Proc. of BioVision 2001, International Conference on Biomedical Engineering*, Dec 2001.

NON-REFEREED CONFERENCE PROCEEDINGS

- O. Klimo, **D. Kumar**, J. Limpouch, S. Weber. Resonantly accelerated electrons from a tightly focused laser beam. In *Proceedings of the 46th EPS conference on plasma physics*, June 2019. P 2.2023.
- S. Singh, H. Ahmed, R. Dudzak, J. Dostal, T. Chodukowski, L. Giuffrida, P. Hadjisolomu, T. Hodge, J. Hrebicek, L. Juha, Z. Kalinowska, E. Krousky, M. Krus, P. Lutoslawski, M. De Marco, M. Pfeifer, J. Skala, J. Ullschmeid, T. Pisarczyk, M. Borghesi, **D. Kumar**, S. Kar. Magnetic field generation from a foil - coil target using kJ - ns class lasers. In *Proceedings of the 43rd EPS conference on plasma physics*, June 2016. P 2.102.
- **D. Kumar**, M. Martinkova, D. de Luis, J. Grosz, D. Klir, O. Renner, M. Borghesi, G. Korn, S. Weber. Plasma Physics Platform at ELI-Beamlines. In *Proceedings of the 41st EPS conference on plasma physics*, June 2014. P 2.092.
- **D. Kumar**, D. Stutman, R. E. Bell, M. Finkenthal, D. J. Clayton, K. Tritz, B. P. LeBlanc, A. Diallo and M. Podesta. Impurity analysis using a space resolved transmission grating based imaging spectrometer on NSTX. In *Proceedings of the 38th EPS conference on plasma physics*, June 2011. P 4.047.
- D. J. Clayton, K. Tritz, M. Finkenthal, **D. Kumar**, D. Stutman, R. E. Bell and B.P. LeBlanc. Edge transport measurements with the new multi-energy soft-x-ray diagnostic on NSTX. In *Proceedings of the 38th EPS conference on plasma physics*, June 2011. P 1.134.
- D. Stutman, K. Tritz, D. J. Clayton, **D. Kumar**, M. Finkenthal, R. Bell and B. LeBlanc. Multi-energy SXR imaging diagnostics for fusion experiments. In *Proceedings of the 38th EPS conference on plasma physics*, June 2011. P 5.049.

INVITED PRESENTATIONS (FIRST AUTHOR ONLY)

- Lecture on "Part 1 - ELI Beamlines an experimental user facility for high intensity research. Part 2 - Laser absorption in relativistic laser matter interaction" at International School on Laser Physics of High Energy Density. Moscow, Russia. March 2019.
- Talk on "Plasma Physics and High Intensity Research at ELI Beamlines" at Shanghai Institute of Optics and Fine Mechanics, China. January 2019.
- Talk on "Generation of sub-MG quasi-stationary magnetic field using cm scale capacitor-coil targets" at workshop on Magnetic Fields in Laboratory High Energy Density Plasmas (LaB), July 22-28, 2017, Russia.
- Lecture on "Laboratory Astrophysics" at ELI summer school, Dolni Brezany, Czechia. August 2016.
- D. Kumar, A. Moser, and P. Bellan. Mechanism of helicity injection in the Caltech spheromak experiment. Innovative Confinement Concepts Workshop. February 16-19, 2010. Princeton, NJ.
- D. Kumar, and P. Bellan. Alfvénic plasma flow during spheromak preformation stage. Innovative Confinement Concepts Workshop. June 24-27, 2008. Reno, Nevada.

HONORS AND AWARDS

- Recipient (co-principal investigator) for grant “Plasma optics for ultra-intense laser physics experiments” from Czech Science Foundation (2018-2020).
- Recipient of the Graduate Research Fellowship by Division of Engineering and Applied Science, Caltech (2003-2004).
- Best Paper Award for the paper “Nonparametric Waveform Estimation in Time and Time-Frequency Domain, An Application to Visual Evoked Potentials,” in BIOVISION 2001, held at Indian Institute of Science, Bangalore in December 2001.
- Recipient of the Texas Telecommunication Engineering Consortium Fellowship (2001-2002).
- “Most Innovative Project” award for the hardware project “Prosthetic Hand Control Using Audio Cues,” at the Technological Festivals of IIT Bombay and IIT Kanpur in 2001.
- Scholarship from the National Board for Higher Mathematics, India(2000).
- Winner of a gold medal from the Indian Association of Physics Teachers for performance in the National Standard Examination in Physics 1997, India. The performance was among the 25 best in the country.
- Ranked 4th in the Regional Mathematics Olympiad in Orissa, India(1995).

OTHER INTERESTS

- Court appointed special advocate with CASA of Baltimore. 2011-2012.
- Member of the Golem Group, LLC - a semi-finalist in the DARPA Urban Challenge 2007 and finalist in the DARPA Grand Challenge 2005.
- Co-Captain of the Caltech Karate Club. 2005-2007. Karate instructor in Dolní Břežany, Czechia (2017-2020).
- Competed Marathons - Washington D.C. (2011), Baltimore (2012), Prague (2014).
- Elevation gain to 18,200 ft. at the BASIC MOUNTAINEERING COURSE organized by the government of Himachal Pradesh, India. July 2001.
- *Person of the Year* award by the student gymkhana, for my work as the *General Secretary Hostel Affairs*, IIT Bombay. 2000-2001.
- *Best Office Bearer* award for my work as the Mess Councilor, Hostel 3-IIT Bombay. 1999-2000.