

CURRICULUM VITAE

Dr. MALAY DALUI

Assistant Professor,
School of Basic and Applied Sciences,
Central University of TamilNadu,
Thiruvarur- 610005,INDIA
E-mail: malaydalui@cutn.ac.in



Academic Qualifications:

2010-2015: **Ph.D.(Physics)**

Department of Nuclear and Atomic Physics, Tata Institute of Fundamental research,
Mumbai, India.

Thesis Title: “Ion and Neutral atom Acceleration in Intense Laser produced plasma”

2008-2010: **M.Sc.[Physics]**

Percentage marks/ CGPA: 8.3

Department of Physics, Indian Institute of Technology Madras, Chennai, Tamil Nadu,
India.

2005-2008: **B.Sc.[Physicshonours]**

Percentage marks/ CGPA: 71%

University of Calcutta, Kolkata, West Bengal, India.
(Ramakrishna Mission Residential College)

Positions Held:

Assistant Professor: (June 2020 – Present)

Department of Physics, School of Basic and Applied Sciences,
Central University of TamilNadu, Thiruvarur, Tamil Nadu.

Post-Doctoral Fellow: (November 2018 – March 2020)

LiDyL, CEA, Université-Paris-Saclay, Paris, France.

Post-Doctoral Fellow: (November 2015 – September 2018)

Atomic Physics Department, Lund University, Lund, Sweden.

Short-term-visiting-Fellow: (August 2015 – October 2018)

TIFR Centre for Interdisciplinary Sciences, Hyderabad, India.

Ongoing projects

1.

Academic awards / Honors / Fellowships / Achievements:

1. Postdoctoral Fellowship, Laboratoire d'Excellence Physique: Atomes, Lumière Matière(Labex-PALM), CEA, Université-Paris-Saclay, France from October 2018 to March 2020.
2. Postdoctoral Fellowship, Knut and Alice Wallenberg Foundation through PLIONA project, Lund University, Sweden, from November 2015 to September 2018.
3. Best Poster award, National Symposium on Nonlinear and Complex Phenomena, Jadavpur University, Kolkata, India on January 2014.
4. Junior Research Fellowship in Physical Science, Council of Scientific and Industrial Research (CSIR), India on December 2009.

Training Programmes Attended:

1. Participated in EMIE-UP Summer School on Multiscale Dynamics in Molecular Systems, held during the period of 25-30 August 2019 at École de Physique des Houches, Chemin-de-la-Côte, Les Houches, France.
2. Participated in the Fourth SERC School on Laser Produced Plasmas: Physics and Applications held during the period of 9-21 July 2012 at Raja Ramanna Centre for Advanced Technology (RRCAT), Indore, India.

Teaching Experience and Courses Taught:

1. Assistant Professor, Department of Physics; Central University of Tamil Nadu since June 2020. (2.5 years)
(Atomic and Molecular Physics, Modern Optics, Heat and Thermodynamics, Modern Physics, Oscillations and Waves)

Research Guidance

M.Sc: 10
B.Sc: 01
Ph.D: -

Research Interest:

- Ultrafast photo-induced reaction dynamics in large quantum system
- High intensity laser-plasma based particle acceleration
- ATTO-physics

Visits(s) to Outside Institution:

1. MAX- IV Synchrotron facility, Lund, Sweden, June 2018.
2. Umeå University, Sweden, March 2017.
3. Chalmers University of Technology, Goteborg, Sweden, November 2015.

4. Astra-Gemini Laser and Vulcan Petawatt Laser facility, Rutherford-Appleton Laboratory, Didcot, Oxfordshire, UK, 4-17 October 2013.
5. GEKKO and LFEX Laser facility, Osaka University, Japan, September 2013.

Journal Publications: International Peer Reviewed Journals:

1. A. Autuori, D. Platzter, M. Lejman, G. Gallician, L. Maeder, A. Covolo, L. Bosse, **M. Dalui**, D. Breteau, J.-F. Hergott, O. Tcherbakoff, H.J. B. Marroux, V. Lorient, F. Lepine, L. Poisson, R. Taieb, J. Caillat, P. Salieres, Anisotropic dynamics of two-photon ionization: An attosecond movie of photoemission, **Science Advances**, 8, eabl7594 (2022). (<https://www.science.org/doi/10.1126/sciadv.abl7594>)
2. A. D. Lad, Y. Mishima, P. K. Singh, B. Li, A. Adak, G. Chatterjee, P. Brijesh, **M. Dalui**, M. Inoue, J. Jha, S. Tata, M. Trivikram, M. Krishnamurthy, M. Chen, Z. M. Sheng, K. A. Tanaka, G. R. Kumar & H. Habara, Luminous, relativistic, directional electron bunches from an intense laser driven grating plasma, **Scientific Reports** 12, 16818 (2022). (<https://www.nature.com/articles/s41598-022-21210-7>)
3. H. Habara, A. D. Lad, R. Nagami, P. K. Singh, G. Chatterjee, A. Adak, **M. Dalui**, J. Jha, P. Brijesh, Y. Mishima, K. Nagai, H. Sakagami, S. Tata, T. M. Trivikram, M. Krishnamurthy, K. A. Tanaka, and G. R. Kumar, Micro-optics for ultra-intense lasers, **AIP Advances** 11, 035214 (2021).
4. **M. Dalui**, A. Permogorov, H. Pahl, A. Persson, and C.-G. Wahlström, Influence of micromachined targets on laser-accelerated proton beam profiles, **Plasma Physics and Controlled Fusion** 60, 035014 (2018).
5. J. Ferri, L. Senje, **M. Dalui**, K. Svensson, B. Aurand, M. Hansson, A. Persson, O. Lundh, C.-G. Wahlström, E. Siminos, L. Gremillet, T. C. DuBois, L. Yi, and T. Fülöp, Proton acceleration by a pair of successive ultraintense femtosecond laser pulses, **Physics of Plasmas** 25, 043115 (2018).
6. K. Svensson, F. Mackenroth, L. Senje, A. Gonoskov, C. Harvey, B. Aurand, M. Hansson, A. Higginson, **M. Dalui**, O. Lundh, P. McKenna, A. Persson, M. Marklund, and C.-G. Wahlström, Transverse Expansion of the Electron Sheath during Laser Acceleration of Protons, **Physics of Plasmas** 24, 123109 (2017).
7. **M. Dalui**, M. Kundu, S. Tata, A. D. Lad, J. Jha, K. Ray, and M. Krishnamurthy, Novel target design for enhanced laser-driven proton acceleration, **AIP Advances** 7, 095018 (2017).
8. L. Giuffrida, K. Svensson, J. Psikal, **M. Dalui**, H. Ekerfelt, I. Gallardo Gonzalez, O. Lundh, A. Persson, P. Lutoslawski, V. Scuderi, J. Kaufman, T. Wiste, T. Lastovicka, A. Picciotto, A. Bagolini, M. Crivellari, P. Bellutti, G. Milluzzo, G.A.P. Cirrone, J. Magnusson, A. Gonoskov, G. Korn, C.-G. Wahlström, and D. Margarone, Manipulation of laser-accelerated proton beam profiles by nanostructured and microstructured targets, **Physical Review Accelerators and Beams** 20, 081301 (2017).
9. **M. Dalui**, T. M. Trivikram, J. Colgan, J. Pasley, and M. Krishnamurthy, Compact acceleration of energetic neutral atoms using high intensity laser-solid interaction, **Scientific Reports** 7, 3871 (2017).
10. **M. Dalui**, M. Kundu, S. Sarkar, S. Tata, J. Pasley, P. Ayyub, and M. Krishnamurthy, Mass selection in laser-plasma ion accelerator on nanostructured surfaces, **Physics of Plasmas** 24, 010703 (2017).

11. **M. Dalui**, M. Kundu, T. M. Trivikram, K. Ray, and M. Krishnamurthy, Manifestation of anharmonic resonance in the interaction of intense ultrashort laser pulses with microstructured targets, **Physics of Plasmas** 23, 103101 (2016).
12. A. Adak, P. K. Singh, A. D. Lad, G. Chatterjee, **M. Dalui**, P. Brijesh, A. P. L. Robinson, J. Pasley, and G. R. Kumar, Efficient transport of femtosecond laser-generated fast electrons in a millimeter thick graphite, **Applied Physics Letters** 109, 174101 (2016).
13. **M. Dalui**, W.M. Wang, T. M. Trivikram, S. Sarkar, S. Tata, J. Jha, P. Ayyub, Z. M. Sheng, and M. Krishnamurthy, Preferential enhancement of laser-driven carbon ion acceleration from optimized nanostructured surfaces, **Scientific Reports** 5, 11930 (2015).
14. R. Rajeev, **M. Dalui**, T. M. Trivikram, K. P. M. Rishad, and M. Krishnamurthy, Anisotropic energetic negative ion emission from cluster nanoplasmas, **Physical Review A** 91, 063403 (2015).
15. **M. Dalui**, M. Kundu, T. M. Trivikram, R. Rajeev, K. Ray, and M. Krishnamurthy, Bacterial cells enhance laser driven ion acceleration, **Scientific Reports** 4, 6002 (2014).
16. **M. Dalui**, T. M. Trivikram, R. Gopal, and M. Krishnamurthy, Probing strong field ionization of solids with a Thomson parabola spectrometer, **Pramana-Journal of Physics** 82, 111 (2014).

Conference Proceedings:

1. A. Autuori, D. Platzer, M. Lejman, G. Gallician, L. Maeder, A. Covolo, L. Bosse, M. Dalui, D. Bresteau, J.-F. Hergott, O. Tcherbakoff, H.J.B. Marroux, V. Lorient, F. Lepine, L. Poisson, R. Taieb, J. Caillat, and P. Salieres, "Attosecond Imaging of Resonant Photoemission Dynamics", **Frontiers in Optics** FTh2B.1(2021).
2. L. Giuffrida, K. Svensson, J. Psikala, D. Margarone, P. Lutoslawski, V. Scuderia, G. Milluzzo, J. Kaufman, T. Wiste, **M. Dalui**, H. Ekerfelt, I. Gallardo Gonzalez, O. Lundh, A. Persson, A. Picciotto, M. Crivellari, A. Bagolini, P. Bellutti, J. Magnusson, A. Gonoskov, L. Klimsa, J. Kopecek, T. Lastovicka, G.A.P. Cirrone, C.-G. Wahlström, and G. Korn, "Nano and micro structured targets to modulate the spatial profile of laser driven proton beams", **Journal of Instrumentation** 12, C03040 (2017).

Papers presented in conference and seminars:

1. **M. Dalui**, M. Lejman, L. Bosse, D. Bresteau, F. Lepetit, J.-F. Hergott, O. Tcherbakoff, L. Poisson and P. Salières, "Study of Ultrafast Photoionization in Argon Clusters", *4^{ème} Réunion plénière du GDR Ultrafast Phenomena*, Cité Internationale Universitaire de Paris, France, 24-26 February, 2020.
2. J. Ferri, L. Senje, **M. Dalui**, K. Svensson, B. Aurand, M. Hansson, A. Persson, O. Lundh, C.-G. Wahlström, L. Gremillet, E. Siminos, T. C. DuBois, L. Yi, J. L. Martin, and T. Fülöp, "Laser-driven Proton Acceleration using two temporally

separated Intense Pulses, *Le Groupe de Recherche "Ultrafast Phenomena"*, GDR N° 3754, Paris, France, 10-11 December, 2018.

3. **M. Dalui**, A. Permogorov, H. Pahl, A. Persson and C.-G. Wahlström, "Reduction of angular divergence of high intensity laser accelerated proton beams using micro-structured targets", *International OSA Network of Students*, Danmarks Tekniske Universitet (DTU), Copenhagen, Denmark, 5-9 June, 2018.
4. **M. Dalui**, T. M. Trivikram, M. Kundu, K Ray and M. Krishnamurthy, "Micro-particles are efficient laser-energy absorbers and facilitate enhanced heavy-ion acceleration", *High Energy Density Science in Asia (HEDS in Asia)*, Busan, South Korea, 19-22 January, 2014.
5. **M. Dalui**, M. Kundu, T. M. Trivikram, K. Ray and M. Krishnamurthy, "Observation of anharmonic resonance and enhanced laser-driven heavier ion acceleration from *E. coli* cells", *National Symposium on Nonlinear and Complex Phenomena*, Jadavpur University, Kolkata, India, 7-9 January, 2014.
6. **M. Dalui**, M. T. Trivikram, S. Tata and M. Krishnamurthy, "Laser-Driven Proton Acceleration Studies using Structured Thin Foils", *International conference by the International Committee on Ultra-High Intensity Lasers (ICUIL)*, Goa, India, October 11-14, 2014.
7. **M. Dalui**, M. T. Trivikram and M. Krishnamurthy, "Laser-plasma based Neutral Atom Acceleration from Solid Targets", *International conference on Inertial Fusion Sciences and Applications (IFSA)*, Nara, Japan, 8-13 September, 2013.
8. **M. Dalui**, M. T. Trivikram and M. Krishnamurthy, "Laser Assisted Neutral Atom Acceleration from Solids", *Topical Conference on Laser Driven Charge Particle Acceleration and Application*, Indian Institute of Technology Delhi, India, April 4, 2013.
9. **M. Dalui**, M. T. Trivikram, K. P. M. Risad, R. Rajeev, K. Ray and M. Krishnamurthy, "Target-front anomalous proton acceleration in laser produced bacteria plasma", *National Laser Symposium (NLS-21)*, Bhabha Atomic Research Centre, Mumbai, India, 5-7 February 2013.

Invited Talks:

1.