

Curriculum Vitae : Kartick Chandra Sarkar

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Contact

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Education & Research

- **Post-doctoral fellow** (2017-present)
Affiliation: Racah Institute of Physics, The Hebrew University of Jerusalem, Israel.
- **KITP graduate fellow** (Spring 2017)
- **PhD (Astrophysics)** (2012-2017)
Thesis Title: Fermi Bubbles and galactic outflows in circumgalactic medium
From: Raman Research Institute, Bangalore, India & Indian Institute of Science, Bangalore, India
Advisors: Prof. Biman Nath, Prof. Prateek Sharma
- **Master of Science (Physics)** (2010-2012) – 9.58/10.0
Thesis Title : Raman spectrum of graphene
From : Indian Institute of Technology, Kharagpur, W.B., India
Advisor: Prof. Anushree Roy
- **Bachelor of Science (Physics)** (2007-2010) – 7.65/10.0
Subjects : Physics (Honours), Mathematics, Chemistry
From : Raiganj College (University College), Raiganj, W.B., India

Awards and Fellowship

- Vaidya-Raychaudhuri Fellowship (declined) by Inter University Center for Astronomy and Astrophysics, India (2017).
- Junior research fellowship (2012-2015) provided by CSIR, India.
- Best poster award in 33rd meeting of Astronomical Society of India (ASI), 2015.
- Scholarship provided by the UGC for rank holders in the university (2010-2012).
- Merit-cum-Means scholarship provided by West Bengal Government (2007-2010).

Talks at conferences/Workshops

- Invited tutorial at the ‘Fundamentals of gaseous halo’ workshop, 2021, KITP, Santa Barbara, USA
- Invited talk at the ‘Bubbles: Big and small’ conference, 2018, Bangalore, India
- Invited talk at the ‘Space physics and astrophysics conference: Isradynamics’, 2014, Israel
- Talk at the Israel Physical Society meeting, 2018, Israel
- Talk at the 34th meeting of Astronomical society of India, 2016

Academic services

- Provided guest lectures in ‘Advanced Cosmology’ course offered by Avishai Dekel at the Hebrew University (2019, 2020).
- Supervised two final year Bachelor students with their study projects (2019,2020).
- Reviewed grant proposal from Research Grants Council (RGC) of Hong Kong.
- Supervised a PhD student with her first research projects (2017). Currently supervising another PhD student.
- Teaching assistant in ‘Basic Astrophysics’ course taken by Prof Biman Nath at Indian Institute of Science, 2015.
- Participated in science exhibition in Indian Institute of Science, India (2014).
- Public outreach activity on Astrophysics at the Raiganj University, West Bengal, India (2013)
- Organized and participated in the annual science exhibition for the physics dept at Raiganj University, India (2009).
- Provided private tuitions in physics for senior school students (2007-2010).

Independent Seminars

- Seminar, Massachusetts Institute of Technology, August, 2019, USA
- Seminar, Ben-Gurion University, May 2019, Israel
- Seminar, University of California, Santa Barbara, 2017, USA
- Seminar, Hidelberg Institute for Theoretical Studies, Sept 2016, Germany
- Seminar, Max Planck Institute for Astrophysics, Sept 2016, Germany
- Seminar, Tel-Aviv University, April 2016, Israel.

Skills

- Codes: Pluto (hydrodynamics), Cloudy (chemistry)
- Language: C, Matlab, Mathematica, python

Research Publications

Single Authored

1. “Possible connection between the asymmetry of the North Polar Spur and Loop I and Fermi bubbles”: **Kartick C. Sarkar**, [MNRAS, 2019, 482, 4813](#)

First Authored

1. “Deprojection of X-ray data in galaxy clusters: confronting simulations with observations”: **Kartick C. Sarkar**, Arjun Dey, Prateek Sharma, [submitted to MNRAS](#)
2. (*) “Non-equilibrium ionisation and radiative transport in an evolving supernova remnant”: **Kartick C. Sarkar**, Orly Gnat, Amiel Sternberg, [MNRAS, 2021, 504, 583](#)
3. “A new ionisation network and radiation transport module in PLUTO”: **Kartick C. Sarkar**, Amiel Sternberg, Orly Gnat, [MNRAS, 2021, 503, 5807](#)
4. “Clues to the origin of Fermi Bubbles from OVII/OVIII line ratio” : **Kartick C. Sarkar**, Biman B. Nath, Prateek Sharma, [MNRAS, 2017, 467, 3544](#)
5. “Diffuse X-ray emission from star forming galaxies”: **Kartick C. Sarkar**, Biman B. Nath, Prateek Sharma, Yuri Shchekinov, [ApJ, 2016, 818, L24](#)
6. (*) “Multi-wavelength features of Fermi Bubbles as signatures of a Galactic wind” : **Kartick C. Sarkar**, Biman B. Nath, Prateek Sharma, [MNRAS, 2015, 453, 3827](#)
7. “Long way to go: how outflows from large galaxies propagate through the hot halo gas” : **Kartick C. Sarkar**, Biman B. Nath, Prateek Sharma, Yuri Shchekinov, [MNRAS, 2015, 448, 328](#)

Other Authored

1. (*) “The global star formation law by supernova feedback”: Avishai Dekel, **Kartick C. Sarkar**, Fangzhou Jiang, Frederic Bournaud, Mark R Krumholz, Daniel Ceverino, Joel Primack, [MNRAS, 2019, 488, 4753](#)
2. “Extraplanar X-ray emission from disc-wide outflows in spiral galaxies”: Aditi Vijayan, **Kartick C. Sarkar**, Biman Nath, Prateek Sharma, Yuri Shchekinov, [MNRAS, 2018, 475, 5513](#)
3. “Fermi bubbles: the collimated outburst needed to explain forward-shock edges”: Santanu Mondal, Uri Keshet, **Kartick C. Sarkar**, Ilya Gurwich, [Arxiv:2109.03834](#)

Softwares Written

1. Projection Analysis Software for Simulations (PASS) – currently suitable for PLUTO code by Mignone+2007
- <https://gitlab.com/kartickchsarkar/PASS-EOV>
2. Non-equilibrium and radiation module plugin -
- <https://gitlab.com/yuvalbi/mineq> (for HYDRA code by Yuval Birnboim)
- <https://gitlab.com/kartickchsarkar/pluto-neq-radiation> (for PLUTO code)