Md Arif Shaikh

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Positions

- **Postdoctoral Fellow** 2022–*current*
  Department of Physics and Astronomy, Seoul National University
  1 Gwanak-ro, Gwanak-gu, Seoul 08826, Korea
  Mentors: Hyung Mok Lee

- **Postdoctoral Fellow** 2019–2022
  Astrophysical Relativity, International Centre for Theoretical Sciences
  Hesaraghatta Hobli, Karnataka, 560089, India
  Mentors: Parameswaran Ajith, Prayush Kumar (unofficial)

Education

- **Doctor of Philosophy (PhD)** 2014–2019
  Cosmology & High Energy Astrophysics, Harish-Chandra Research Institute
  Chhatnag Road, Jhunsi, Prayagraj, 211019, Uttar Pradesh, India
  Advisor: Tapas Kumar Das

- **Master of Science (MSc)** 2012–2014
  Cosmology & High Energy Astrophysics, Harish-Chandra Research Institute
  Chhatnag Road, Jhunsi, Prayagraj, 211019, Uttar Pradesh, India
  Advisor: Tapas Kumar Das

- **Bachelor of Science (BSc)** 2009–2012
  Faculty of Physics, Jadavpur University
  188, Raja S.C. Mallick Rd, Kolkata 700032, India

Publications

Short author

Peer reviewed publications

1. M. K. Singh, D. Divyajyoti, S. J. Kapadia, M. A. Shaikh & P. Ajith, "Improved early-warning estimates of luminosity distance and orbital inclination of compact binary mergers using higher modes of gravitational radiation", Mon. Not. Roy. Astron. Soc., **513**, 3798–3809, (2022), arXiv:2202.05802 [astro-ph.HE], cited by *2*

2. S. Maity, M. A. Shaikh, P. Tarafdar & T. K. Das, "Carter-Penrose diagrams for emergent spacetime in axisymmetrically accreting black hole systems", Phys. Rev. D, **106**, 044062, (2022), arXiv:2106.07598 [gr-qc], cited by *0*

3. W. Wei, E. A. Huerta, M. Yun, N. Loutrel, M. A. Shaikh, P. Kumar, R. Haas & V. Kindratenko, "Deep Learning with Quantized Neural Networks for Gravitational-wave Forecasting of Eccentric Compact Binary Coalescence", Astrophys. J., **919**, 82, (2021), arXiv:2012.03963 [gr-qc], cited by *20*

4. M. K. Singh, S. J. Kapadia, M. A. Shaikh, D. Chatterjee & P. Ajith, "Improved early warning of compact binary mergers using higher modes of gravitational radiation: A population study", Mon. Not. Roy. Astron. Soc., **502**, 1612–1622, (2021), arXiv:2010.12407 [astro-ph.HE], cited by *10*

5. S. J. Kapadia, M. K. Singh, M. A. Shaikh, D. Chatterjee & P. Ajith, "Of Harbingers and Higher Modes: Improved gravitational-wave early-warning of compact binary mergers", Astrophys. J. Lett., **898**, L39, (2020), arXiv:2005.08830 [astro-ph.HE], cited by *15*

6. M. A. Shaikh, S. Maity, S. Nag & T. K. Das, "Effective sound speed in relativistic accretion discs around Schwarzschild black holes", New Astron., **69**, 48–57, (2019), arXiv:1806.04084 [astro-ph.HE], cited by *4*

7. M. A. Shaikh & T. K. Das, "Linear perturbations of low angular momentum accretion flow in the Kerr metric and the corresponding emergent gravity phenomena", Phys. Rev. D, **98**, 123022, (2018), arXiv:1803.09896 [astro-ph.HE], cited by *8*

8. M. A. Shaikh, "Relativistic sonic geometry for isothermal accretion in the Kerr metric", Class. Quant. Grav., **35**, 055002, (2018), arXiv:1705.04918 [gr-qc], cited by *11*

9. S. Datta, M. A. Shaikh & T. K. Das, "Acoustic geometry obtained through the perturbation of the Bernoulli's constant", New Astron., **63**, 65–74, (2018), arXiv:1612.07954 [gr-qc], cited by *12*

10. M. A. Shaikh, I. Firdousi & T. K. Das, "Relativistic sonic geometry for isothermal accretion in the Schwarzschild metric", Class. Quant. Grav., **34**, 155008, (2017), arXiv:1612.07963 [gr-qc], cited by *13*

Collaboration

Peer reviewed publications

1. KAGRA, LIGO Scientific, VIRGO, "Search for continuous gravitational wave emission from the Milky Way center in O3 LIGO-Virgo data", Phys. Rev. D, **106**, 042003, (2022), arXiv:2204.04523 [astro-ph.HE], cited by *41*

2. KAGRA, VIRGO, LIGO Scientific, "First joint observation by the underground gravitational-wave detector KAGRA with GEO 600", PTEP, **2022**, 063F01, (2022), arXiv:2203.01270 [gr-qc], cited by *46*

3. KAGRA, VIRGO, LIGO Scientific, "Search for gravitational waves from Scorpius X-1 with a hidden Markov model in O3 LIGO data", Phys. Rev. D, **106**, 062002, (2022), arXiv:2201.10104 [gr-qc], cited by *26*

4. KAGRA, LIGO Scientific, VIRGO, "All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO and Advanced Virgo O3 data", Phys. Rev. D, **106**, 102008, (2022), arXiv:2201.00697 [gr-qc], cited by *86*

5. KAGRA, VIRGO, LIGO Scientific, "All-sky search for gravitational wave emission from scalar boson clouds around spinning black holes in LIGO O3 data", Phys. Rev. D, **105**, 102001, (2022), arXiv:2111.15507 [astro-ph.HE], cited by *74*

6. LIGO Scientific, VIRGO, KAGRA, "Searches for Gravitational Waves from Known Pulsars at Two Harmonics in the Second and Third LIGO-Virgo Observing Runs", Astrophys. J., **935**, 1, (2022), arXiv:2111.13106 [astro-ph.HE], cited by *62*

Presentations

Conference Talks

1. "Defining eccentricity for gravitational wave astronomy", GWPAW, Melbourne, Australia, December 4–9, 2022

2. "Probing the evolution history of compact binaries from higher modes of gravitation waves", ICTS In-house symposium, Bangalore, India, February 17–18, 2020

3. "Relativistic acoustic geometry in general relativistic accretion disc around Kerr black holes", Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy, Kolkata, India, November 14–17, 2018

4. "Emergence of curved sonic manifold for isothermal accretion in black hole metric", Young Astronomers Meet, Pune, India, September 11–15, 2017

Seminars

1. "Defining eccentricity for gravitational wave astronomy", ICTS-TIFR, Bangalore (online), India, December 01, 2022
2. "Defining eccentricity for gravitational wave astronomy", RESCEU, Tokyo, Japan, November 18, 2022
3. "Defining eccentricity for gravitational wave astronomy", OIT, Osaka, Japan, November 16, 2022
4. "Defining eccentricity for gravitational wave astronomy", YITP, Kyoto, Japan, November 14, 2022
5. "On the emergent sonic geometry through the linear perturbation of relativistic black hole accretion", HRI, Allahabad, India, November 18, 2019

References

- **Tapas Kumar Das**, (Phd Advisor)
  Professor, Harish-Chandra Research Institute
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- **Parameswaran Ajith**, (Postdoc mentor)
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- **Prayush Kumar**
  Reader, International Centre for Theoretical Sciences
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- **Vijay Varma**
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  Dartmouth, USA
  Email: None