

Aditya Vijaykumar

aditya.vijaykumar@icts.res.in • +91 8830204638 • International Centre for Theoretical Sciences, Bengaluru, India.

RESEARCH INTERESTS Gravitational Wave Astronomy and Astrophysics, Tests of General Relativity and Cosmology, Scientific Computing

EDUCATION **International Centre for Theoretical Sciences (ICTS-TIFR), Bengaluru**
Research Scholar and Graduate Student in Physics 2018 - Present

Birla Institute of Technology and Science (BITS), Pilani
M.Sc. (Hons.) Physics and B.E. (Hons.) Mechanical Engineering 2013 - 2018

EMPLOYMENT **Graduate Student**
International Centre for Theoretical Sciences (ICTS-TIFR), Bengaluru
Mentored by *Prof. Parameswaran Ajith* Aug 2018 - Present
Member of the *LIGO Scientific Collaboration* and the *LIGO-India Scientific Collaboration*

Summer Research Intern
International Centre for Theoretical Sciences (ICTS-TIFR), Bengaluru
Mentored by *Prof. Parameswaran Ajith* May 2018 - July 2018
Topic - *Cosmological Large-scale Structure probes using gravitational-wave observations*

Visiting Student (Masters Thesis)
Centre for High Energy Physics (CHEP), Indian Institute of Science (IISc), Bengaluru, India
Mentored by *Prof. Chethan Krishnan* July 2017 - April 2018
Topic - *Complexity in context of Locality, Entanglement and Quantum Gravity*

Summer Research Intern
The Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India
Mentored by *Prof. Raghunathan Srianand* May 2016 - July 2016
Topic - *Analysis of Quasar Absorption Lines from SDSS Photometric Data*

Summer Research Intern
The National Centre for Radio Astrophysics (NCRA-TIFR), Pune, India
Mentored by *Prof. Yashwant Gupta* May 2015 - July 2015
Topic - *Testing the fast transient detection pipeline of the GMRT*

PUBLICATIONS 3. **Aditya Vijaykumar**, M. V. S. Saketh, Sumit Kumar, Parameswaran Ajith, Tirthankar Roy Choudhury
Probing the large scale structure using gravitational wave observations of binary black holes,
Submitted to *Physical Review Letters*, [arXiv:2005.01111](#).

2. **Aditya Vijaykumar**, Shasvath J. Kapadia, Parameswaran Ajith
Constraints on the time variation of the gravitational constant using gravitational wave observations of binary neutron stars,
Submitted to *Physical Review Letters*, [arXiv:2003.12832](#).

1. P. Virtanen *et al.* (incl. **Aditya Vijaykumar** as *SciPy 1.0 Contributor*)
SciPy 1.0—Fundamental Algorithms for Scientific Computing in Python,
Nat Methods 17, 261–272 (2020), [arXiv:1907.10121](#).

CONFERENCES, SCHOOLS AND TALKS • Semester Participant, **Advances in Computational Relativity**, ICERM, Brown University, USA. September 2020 - December 2020 (Online)

• Co-organizer, **ICTS Workshop on Parameter Estimation with bilby**, ICTS, Bengaluru, India, August 2020 (Online)

• Invited seminar titled *Probing Large Scale Structure using Binary Black Hole Observations* at **Instituut-Lorentz for Theoretical Physics, Leiden University**, Leiden, Netherlands, June 2020 (Online)

- Tutor for the *LIGO-Virgo Collaboration Gravitational-Wave Open Data Workshop #3*, May 2020 (Online)
- Participant and Tutor for the *Numerical Hydrodynamics* mini-course, **ICTS Summer School on Gravitational Wave Astronomy**, ICTS, Bengaluru, India, May-June 2020 (Online)
- Poster titled *Constraints on Black Hole Mimickers using GWTC-1* at **ICTS In-house Symposium**, ICTS, Bengaluru, India, February 2020
- Talk titled *Probing Large Scale Structure using Binary Black Hole Observations* at **ICTS In-house Symposium**, ICTS, Bengaluru, India, February 2020
- Participant, **Discussion Meeting - Astrophysics of Supermassive Black Holes**, ICTS, Bengaluru, India, December 2019
- Invited outreach talk titled *The Whats, Whys and Hows of Gravitational-wave Astronomy*, **BMS College of Engineering, Bengaluru**, November 2019
- Participant, **Discussion Meeting - Future of Gravitational Wave Astronomy**, ICTS, Bengaluru, India, August 2019
- Invited seminar titled *Probing Large Scale Structure using Binary Black Hole Observations* at **The Inter-University Centre for Astronomy and Astrophysics (IUCAA)**, Pune, India, September 2019
- Invited outreach talk titled *Gravitational Waves - A New Tool for Cosmology!* at **Vigyan Samagam**, Visvesvaraya Industrial and Technological Museum, Bengaluru, India, August 2019
- Participant and Tutor for the *Advanced General Relativity* mini-course, **ICTS Summer School on Gravitational Wave Astronomy**, ICTS, Bengaluru, India, July 2019
- Talk titled *Probing Large Scale Structure using Binary Black Hole Observations* at **GR22 and Amaldi13**, Valencia, Spain, July 2019
- Invited talk titled *Probing Large Scale Structure using Binary Black Hole Observations* at **Max Planck Institute for Gravitational Physics**, Hannover, Germany, June 2019
- Participant, **ICTS Summer School on Gravitational Wave Astronomy**, ICTS, Bengaluru, India, July 2018
- Participant, **ICTS Summer School on Gravitational Wave Astronomy**, ICTS, Bengaluru, India, July 2017
- Talk titled *Gravitational Lensing from Orbiting Binary* at the **Paper Presentation competition of APOGEE 2017**, BITS Pilani, India (*First runner-up*)

TECHNICAL SKILLS

Programming Languages - Python, C, C++, Shell Script
Softwares - MATLAB, Mathematica
Tools/Frameworks - L^AT_EX, Git

SCORES AND AWARDS

- Scored 960/990 on the **Subject GRE in Physics**, October 2017
- Secured all-India rank 21 in the **Joint Entrance Screening Test (JEST)**, 2018 for admission into Physics PhD programmes in India
- Awarded the **ICTS S.N. Bhatt Memorial Excellence Fellowship**, 2018
- Selected for the **Summer Research Fellowship** of the Indian Academy of Sciences in 2016
- Recipient of the **INSPIRE-DST Scholarship for Higher Education** for the period 2013 to 2018

REFERENCES

- Prof. Parameswaran Ajith, ICTS – ajith@icts.res.in
- Dr. Shasvath Kapadia, ICTS – shasvath.kapadia@icts.res.in
- Dr. Sumit Kumar, AEI Hannover – sumit.kumar@aei.mpg.de
- Prof. Bala Iyer, ICTS – bala.iyer@icts.res.in