

Aditya Vijaykumar

aditya.vijaykumar@icts.res.in • Website • 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](#).

SEMINARS AND INVITED TALKS • *Probing Large Scale Structure using Binary Black Hole Observations* at **Instituut-Lorentz for Theoretical Physics, Leiden University**, Leiden, Netherlands, June 2020 (Online)

• *Probing Large Scale Structure using Binary Black Hole Observations* at **The Inter-University Centre for Astronomy and Astrophysics (IUCAA)**, Pune, India, September 2019

• *Probing Large Scale Structure using Binary Black Hole Observations* at **Max Planck Institute for Gravitational Physics**, Hannover, Germany, June 2019

CONFERENCES, AND OTHER MEETINGS	<ul style="list-style-type: none"> • Semester Participant, Advances in Computational Relativity, ICERM, Brown University, USA. September 2020 - December 2020 (Online) • Poster titled <i>Constraints on Black Hole Mimickers using GWTC-1</i> at ICTS In-house Symposium, ICTS, Bengaluru, India, February 2020 • Talk titled <i>Probing Large Scale Structure using Binary Black Hole Observations</i> at ICTS In-house Symposium, ICTS, Bengaluru, India, February 2020 • Participant, Discussion Meeting - Astrophysics of Supermassive Black Holes, ICTS, Bengaluru, India, December 2019 • Talk titled <i>Probing Large Scale Structure using Binary Black Hole Observations</i> at International Conference on Gravitation & Cosmology, IISER, Mohali, India, December, 2019 • Participant, Discussion Meeting - Future of Gravitational Wave Astronomy, ICTS, Bengaluru, India, August 2019 • Talk titled <i>Probing Large Scale Structure using Binary Black Hole Observations</i> at GR22 and Amaldi13, Valencia, Spain, July 2019 • Talk titled <i>Gravitational Lensing from Orbiting Binary</i> at the Paper Presentation competition of APOGEE 2017, BITS Pilani, India (<i>First runner-up</i>)
SCHOOLS AND TUTORING	<ul style="list-style-type: none"> • Co-organizer and tutor, ICTS Workshop on Parameter Estimation with bilby, ICTS, Bengaluru, India, August 2020 (Online) • Tutor, LIGO-Virgo Collaboration Gravitational-Wave Open Data Workshop #3, May 2020 (Online) • Participant and Tutor for the <i>Numerical Hydrodynamics</i> mini-course, ICTS Summer School on Gravitational Wave Astronomy, ICTS, Bengaluru, India, May-June 2020 (Online) • Participant and Tutor for the <i>Advanced General Relativity</i> mini-course, ICTS Summer School on Gravitational Wave Astronomy, ICTS, Bengaluru, India, July 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
OUTREACH TALKS	<ul style="list-style-type: none"> • <i>The Whats, Whys and Hows of Gravitational-wave Astronomy</i>, BMS College of Engineering, Bengaluru, November 2019 • <i>Gravitational Waves - A New Tool for Cosmology!</i> at Vigyan Samagam, Visvesvaraya Industrial and Technological Museum, Bengaluru, India, August 2019
TECHNICAL SKILLS	<p>Programming Languages - Python, C, C++, Shell Script</p> <p>Softwares - MATLAB, Mathematica</p> <p>Tools/Frameworks - L^AT_EX, Git</p>
SCORES AND AWARDS	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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