

ABHIRUP GHOSH

Curriculum Vitae

Max Planck Institute for Gravitational Physics (Albert Einstein Institute)
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PERSONAL INFORMATION

Full name	Abhirup Ghosh
Place of birth	Kolkata (India)
Date of birth	February 1, 1989
Nationality	Indian

CURRENT POSITION

Oct 2018—Now	Postdoctoral Researcher, Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, Germany
Apr 2015 — Now	Member, LIGO-Scientific Collaboration
Jan 2018 – Now	Member, GWIC-3G Science Case Team
Apr 2020 - Now	Member, LISA Consortium
Jun 2019 - Now	Member, Consultative Group, Principal Scientific Adviser, Government of India

CURRENT RESEARCH INTERESTS

Gravitational wave astrophysics, specifically data analysis and parameter estimation using observations of gravitational waves from compact binary coalescences, and testing strong field gravity and nature of compact objects.

AWARDS and HONOURS

INDIVIDUAL

2019	Honorable Mention, GWIC-Braccini Thesis Prize
2019	AWSAR (Augmenting Writing Skills for Articulating Research) Award, 2018, organised by the Department of Science and Technology (DST), Government of India
2017	Ramakrishna Cowsik Medal of Tata Institute Of Fundamental Research, given for the best paper published in the last three years, to researchers under the age of 35
2008	J.B.N.S.T.S. (Jagadis Bose National Science Talent Search) Scholarship, awarded by State Government of West Bengal, India, through financial support from the Ministry of Human Resource Development(MHRD), Council of Scientific and Industrial Research (CSIR) and the Department of Science and Technology (DST), Government of India.

2008	Scholar, N.I.U.S (National Initiative on Undergraduate Sciences), HBCSE-TIFR
2007	INSPIRE Scholarship, awarded by the Government of India
2007	Ajit Sarkar and Maya Sarkar Memorial Award, Bhavan's Gangabux Kanoria Vidyamandir
2005	N.T.S.E (National Talent Search Examination) Scholarship, awarded by National Council of Educational Research and Training, India
2005	C. Subramaniam Award for Excellence in Character, the highest award for character excellence, awarded by Bhavan's Gangabux Kanoria Vidya Mandir, Kolkata, India
2004	Certificate for All-round Excellence- Parle UtkarshoVritti

AS A COLLABORATION MEMBER

2017	Princess of Asturias Award for Technical and Scientific Research, awarded US physicists Rainer Weiss, Kip S. Thorne and Barry C. Barish and LIGO Scientific Collaboration (LSC)
2017	Einstein Medal from the Einstein Society in Bern, Switzerland (as member of the LIGO-Virgo Collaboration)
2017	Royal Astronomical Society Group Achievement Award 'A' (as member of the LIGO-Virgo Collaboration)
2016	Special Breakthrough Prize in Fundamental Physics awarded for detection of gravitational waves 100 years after Albert Einstein predicted their existence (as member of the LIGO-Virgo Collaboration)
2016	Gruber Cosmology Prize (as member of the LIGO-Virgo Collaboration)

PAST POSITIONS AND EDUCATION RECORDS

Jul 2018 — Oct 2018	Visiting Fellow, International Centre for Theoretical Sciences
Jul 2013 — Jul 2018	Ph.D, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore, India, - Thesis supervisor: Prof. P. Ajith - Thesis: "<u>Testing general relativity using gravitational wave signals from the inspiral, merger and ringdown of binary black holes</u>"
Apr 2015 — Oct 2018	Member, IndiGO (Indian Initiative in Gravitational-wave Observations)
Jul 2010 — May 2012	Masters in Physics, Indian Institute of Technology (University of Roorkee), Roorkee, India
Jul 2007 – Apr 2010	Bachelors in Physics, Presidency College, Kolkata (University of Calcutta)
Class of 2007	Bhavan's Gangabux Kanoria Vidyamandir (C.B.S.E), Kolkata, India

PUBLICATIONS

10+ articles, short-author and collaboration papers with my direct contribution including the first gravitational waves detection paper, "**Observation of Gravitational Waves from a Binary Black Hole Merger, PRL.116, 061102 (2016)**" [A full list of publications is given at the end].

PAST RESEARCH EXPERIENCE

- Aug 2014 - Dec 2014 **Semester Project**, International Centre for Theoretical Sciences, “Parameter Estimation in the Population Dynamic Model of *D. Melanogaster*: Application of Bayesian Inference and the Markov Chain Monte Carlo method”
• Advisor: Prof. Amit Apte
- Aug 2014 - Dec 2014 **Summer Project**, International Centre for Theoretical Sciences, “Test of General Relativity using Gravitational Wave Signals from Coalescing Black-Hole Binaries”
• Advisor: Prof. P. Ajith
- May 2011 – Jul 2011 **Summer internship**, Dahlem Centre for Complex Quantum Systems, Freie University, Berlin, Germany, “Analysis of the electronic properties (electronic band-dispersion relations) of monolayer and bilayer graphenes, using the tight-binding model, and describe the effect of a general deformation on the lattice, through an analysis of electron-phonon interactions.”
• Advisor: Prof. Felix von Oppen¹
- May 2008 – Mar 2010 **Visiting Student**, Tata Institute of Fundamental Research, “Inflationary Cosmology”
• Mentor: Prof. Subhabrata Majumdar

MENTORING AND SUPERVISION

- Sep 2019 – Jul 2020 Co-advisor (External) to **Giorgio Nicolini**, University of Pisa, Italy, *Masters’ Thesis student*
- Jul 2018 – Now Co-advisor to **Tousif Islam**, Indian Institute of Science Education and Research, Kolkata, *Long-term Visiting student*
- May – Jul 2018 Co-advisor to **Satvik Singh**, Indian Institute of Science Education and Research, Mohali, *IAS Summer student*
- May – Dec 2017 Co-advisor to **Siddharth Dhanpal**, Centre for Basic Sciences, Mumbai, *Long-term visiting student*
- May – Jul 2016 Co-advisor to **Soham Kulkarni**, Indian Institute of Technology, Hyderabad, *S.N.Bhatt Summer student*
- May – Jul 2016 Co-advisor to **Manasi Sharma**, Indus International School, Bangalore, *Summer student*

SYNERGETIC ACTIVITIES

LIGO SCIENTIFIC-VIRGO COLLABORATION ACTIVITIES

- Oct 2019-Jun 2020 **Editorial/Paper-writing team member, GW190814 Discovery Paper**
- Dec 2018 *Internal LVC Reviewer*, Inspiral-Merger-Ringdown Consistency Tests with Higher Modes on Gravitational Signals from the Second Observing Run of LIGO and Virgo, Breschi et al [arXiv:1903.05982]

¹ The summer internship work was further continued at IIT, Roorkee and finally submitted as part of the M.Sc Final Semester Dissertation.

Nov 2018	<i>Internal LVC Reviewer</i> , Lorentz Invariance test results <i>Internal LVC Reviewer</i> , Posterior Samples Release accompanying publication
	B. P. Abbott et al. [LIGO Scientific and Virgo Collaboration], Tests of General Relativity with GW170817, arXiv:1811.00364 (2018)
Nov 2017	<i>Internal LVC Reviewer</i> , Lorentz Invariance test results, B. P. Abbott et al. [LIGO Scientific and Virgo Collaboration], GW170608: Observation of a 19-solar-mass Binary Black Hole Coalescence, arXiv:1711.05578 (2017)]

TEACHING ACTIVITIES

Jul 2017	<i>Tutor</i> , Course: “Tides in binary star systems”, Course Instructor: Tanja Hinderer (Max Planck Institute for Gravitational Physics); Summer School On Gravitational-Wave Astronomy, ICTS, July 17-28, 2017, Bangalore, India
Jul 2016	<i>Instructor</i> , “Gravitational Wave parameter estimation and LALInference demonstration”, Gravitational Wave Boot Camp, ICTS, 23-24 July, 2016
May 2016	<i>Instructor</i> , “Gravitational Wave parameter estimation and LALInference demonstration”, Gravitational Wave Workshop, IUCAA, April 28-May 1, 2015

ORGANISATIONAL ACTIVITIES

2021	Panel member, Assessment of Phd applications to the Max Planck Institute for Gravitational Physics (AEI), Potsdam, for the Fall-semester
Nov-Dec 2020	Organisation of Unconscious Bias Seminars by Working Between Cultures at Max Planck Institute for Gravitational Physics (AEI), Potsdam
2020	Panel member, Assessment of Phd applications to the Max Planck Institute for Gravitational Physics (AEI), Potsdam, for the Fall-semester
2019 - now	Member, Think Tank, Mindrezala
2019 - now	Member, Survey Working Group, Postdocnet, Max Planck Society
2018-19	Organisation and establishment of the Students’ and Postdocs’ Council, International Centre for Theoretical Sciences, Bangalore, India
May 2017	GW Bootcamp, Iucaa, India, May 12-13, 2017

OTHER ACADEMIC ACTIVITIES

2011-12	General Secretary, Physics Association, Indian Institute Of Technology Roorkee
2010-11	Class Representative, PHYSICS ASSOCIATION, Indian Institute Of Technology Roorkee

INVITED TALKS AND PANEL DISCUSSIONS

Mar 2021	<i>Departmental Seminar</i> , Astroparticle Physics and Cosmology Division, Saha Institute of Nuclear Physics, Kolkata, 5 March, 2021
May 2020	<i>GR Seminar</i> , Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge, United Kingdom [Cancelled due to COVID-19]
Apr 2020	<i>Colloquium</i> , Albert Einstein Institute, Hannover [Cancelled due to COVID-19]

Mar 2020	Seminar, The University of Texas, Austin [Cancelled due to COVID-19]
Jan 2020	<i>"Einstein's legacy, songs from the stellar graveyard and the 2017 Nobel Prize in Physics"</i> , Newtown School, Kolkata, 6 January, 2020
Dec 2019	Public Talk, <i>"Einstein's legacy: Songs from the Stellar Graveyard"</i> , LIGO Week, Vigyan Samagam, December 20, 2019
Dec 2019	Colloquium, <i>"Einstein's legacy: Songs from the Stellar Graveyard"</i> , Indian Association for the Cultivation Of Science, December 19, 2019
Dec 2019	Colloquium, <i>"Einstein's legacy: Songs from the Stellar Graveyard"</i> , Indian Institute of Technology, Gandhinagar, December 17, 2019
Nov 2019	RTG Seminar, <i>"Einstein's legacy: Songs from the Stellar Graveyard"</i> , Theoretisch-Physikalisches Institut of Friedrich-Schiller Universität Jena, November 28, 2019
Sep 2019	Chair, Testing GR Face-to-Face, The LSC-VIRGO September Meeting, Warsaw, Poland, 2-6 September 2019
May 2019	Panel Member, Extreme Gravity Session-I, Physics and Astrophysics at the eXtreme Meeting, Cascina, Italy, May 27-29, 2019
Feb 2019	ARC Seminar, <i>"Testing general relativity using observations of gravitational waves from the inspiral, merger and ringdown of binary black holes"</i> , Max Planck Institute for Gravitational Physics (Albert Einstein Institute), February 27, 2019
Jan 2019	<i>"Einstein's legacy, songs from the stellar graveyard and the 2017 Nobel Prize in Physics"</i> , Department of Physics, Jadavpur University, Kolkata, January 28, 2019
Aug 2018	CMPRC SEMINAR, <i>"Testing general relativity using observations of gravitational waves from binary black hole coalescences"</i> , Jadavpur University, Kolkata, 24th August, 2018
Aug 2018	<i>"Einstein's legacy, songs from the stellar graveyard and the 2017 Nobel Prize in Physics"</i> , Bhavan's Gangabux Kanoria Vidyamandir, Kolkata, 17 August, 2018
Aug 2018	Panelist, "Testing General Relativity" session at "Physics and Astronomy at the eXtreme (PAX) IV", IUCAA, Pune India; 7-10 August, 2018
Dec 2017	<i>"Testing general relativity using observations of gravitational waves from binary black hole coalescences"</i> , S.N.Bose National Centre for Basic Sciences, Kolkata, 22 December, 2017
Nov 2017	PUG (Primordial Universe and Gravity) Seminar, <i>"Testing general relativity using gravitational wave signals from the inspiral, merger and ringdown of binary black holes"</i> , Institute for Gravitation and the Cosmos, Pennsylvania State University, State College, Pennsylvania, USA
Oct 2017	ICTS Outreach Lecture Series, <i>"Einstein's legacy, songs from the stellar graveyard and the 2017 Nobel Prize in Physics"</i> . Oakridge International School, Bangalore, 25 October, 2017
Jun 2017	Special Seminar, <i>"Detection of a third binary black hole coalescence by Advanced LIGO"</i> , ICTS-TIFR, Bangalore, 2 June, 2017
Feb 2017	<i>"Gravitational Wave Astronomy: A New Window onto the Universe"</i> , St. Joseph's College (Autonomous), Bangalore, 21 February, 2017
Dec 2016	<i>Chat with a Scholar</i> , Banbagashi College, Calcutta University, December 20, 2016

Feb, 2016 “Deciphering the discovery: Summary of the companion papers”, The universe in a new light: Gravitational waves detected 100 years after Einstein's prediction, Chandrasekhar Auditorium, ICTS, Bengaluru, 13 February 2016.

CONTRIBUTORY TALKS AT CONFERENCES/MEETINGS

Apr 2021 “Constraints on the quasi-normal mode frequencies of the LIGO-Virgo signals by making use of a full gravitational-wave model”, APS April Meeting 2021, April 17, 2021; Virtual

Dec 2019 “Testing the No-hair Conjecture Using observations of gravitational waves from binary black holes”, International Conference on Gravitation and Cosmology (ICGC), IISER Mohali, December 11, 2019

Dec 2019 “Testing General Relativity using the multipolar structure of gravitational radiation from a binary black hole merger”, International Conference on Gravitation and Cosmology (ICGC), IISER Mohali, December 10, 2019

Oct 2019 “Testing General Relativity using the multipolar structure of gravitational radiation from a binary black hole merger”, Gravitational Wave Physics and Astronomy Workshop (GWPAW), The Research Center for the Early Universe (RESCEU), The University of Tokyo, Japan October 17, 2019

Jul 2019 “Testing general relativity using observations of gravitational waves from the inspiral, merger and ringdown of binary black holes”, 22nd International Conference on General Relativity and Gravitation/13th Edoardo Amaldi Conference on Gravitational Waves (GR22/Amaldi13), Valencia, Spain, July 8, 2019

Mar 2017 “Testing General Relativity using gravitational wave signals from the inspiral, merger and ringdown of binary black holes”, XXXV Meeting of Astronomical Society of India, B.M. Birla Planetarium, Jaipur, March 8, 2017

May 2016 “Testing general relativity using golden black-hole binaries”, XXXIV Meeting of Astronomical Society of India, University of Kashmir, Srinagar 10-13 May 2016

Dec 2015 “Testing general relativity using golden black-hole binaries: Based on the consistency of inspiral, merger and ringdown in a BBH signal”, International Conference On Gravitation And Cosmology (ICGC), IISER Mohali, India, December 14-18, 2015

Nov 2015 “Testing GR using golden black-hole binaries”, AEI-ICTS JOINT WORKSHOP ON GRAVITATIONAL-WAVE ASTRONOMY, ICTS, November 4-6, 2015, Bangalore, India

Mar 2015 “Test of General Relativity by measuring the energy and angular momentum lost by binary black holes into Gravitational Waves: A Bayesian Implementation”, IAGRG, 2015, Raman Research Institute, Bangalore, India, March, 18-20, 2015

ACADEMIC VISITS

Dec 2019 Indian Institute of Technology, Gandhinagar, India, Host: Prof. Sudipta Sarkar

Jan 2019 International Centre for Theoretical Sciences, Bangalore, India, Host: Prof. P. Ajith

Nov 2017 Institute for Gravitation and the Cosmos, Pennsylvania State University, State College, Pennsylvania, USA, Host: Prof. B. S. Sathyaprakash

Aug 2017	Dipartimento di Fisica “Enrico Fermi”, Università di Pisa, Largo Bruno Pontecorvo 3 56127 Pisa, Italy, Host: Dr. Walter Del Pozzo
Dec 2016	Saha Institute of Nuclear Physics, Block - AF, Sector-1, Bidhan nagar, Kolkata, West Bengal, 700064, Host: Dr. Koushik Dutta
Mar 2016	California Institute of Technology, 1200 E California Blvd, Pasadena, CA 91125, USA, Host: Dr. Yanbei Chen
Dec 2015	Saha Institute of Nuclear Physics, Block - AF, Sector-1, Bidhan nagar, Kolkata, West Bengal 700064, Host: Dr. Koushik Dutta

CONFERENCES/MEETINGS

Dec 2019	International Conference on Gravitation and Cosmology (ICGC), IISER Mohali, December 10-13, 2019
Oct 2019	The Science of Third-Generation Gravitational-Wave Detectors, Berlin-Brandenburg Academy of Sciences and Humanities, Berlin, 22-23 October 2019
Oct 2019	Gravitational Wave Physics and Astronomy Workshop (GWPAW), The Research Center for the Early Universe (RESCEU), The University of Tokyo, Japan October 17, 2019
Sep 2019	The LSC-VIRGO September Meeting, Warsaw, Poland, 2-6 September 2019
Jul 2019	22nd International Conference on General Relativity and Gravitation/13th Edoardo Amaldi Conference on Gravitational Waves (GR22/Amaldi13), Valencia, Spain, July 7-12, 2019
May 2019	Physics and Astrophysics at the eXtreme Meeting, Cascina, Italy, May 27-29, 2019
May 2019	<u>LISA Waveform Working Group Meeting, Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, May 13-15, 2019</u>
Apr 2019	The Max Planck PostdocNet Founding Meeting, Harnack Haus, Berlin, April 29-30, 2019
Feb 2019	Astrophysical Cosmological Relativity Group Retreat, Schloss Ringberg Tagungsstätte der Max-Planck-Gesellschaft, February 6-9, 2019
Nov 2018	The Hubble Constant Controversy: Status, Implications and Solutions, Berlin Science Week 2018, November 10, 2018
Aug 2018	Physics and Astrophysics at the eXtreme Meeting, IUCAA, Pune, August 7-10, 2018
Mar 2018	Neighbourhood Astronomy Meeting (BU, JNP, ICTS, IIA, IISc, ISRO, RRI), Indian Institute of Astrophysics, Bangalore, March 5-6, 2018
Feb 2018	IndIGO LSC Face-to-Face (F2F) Meeting, ICTS, India, February 16, 2018
Oct 2017	“Cosmic fireworks: first joint detection of gravitational and electromagnetic waves from colliding neutron stars”, GW170817 Detection Meeting, ICTS, October 19, 2017
Sep 2017	LIGO Science Collaboration-Virgo Collaboration-Meeting, CERN, Geneva, on August 28- September 1, 2017
Aug 2017	Physics and Astrophysics at the eXtreme Meeting, Nikhef, Amsterdam, August 14-17, 2017

May 2017	29 th meeting of the Indian Association for General Relativity and Gravitation (IAGRG) "The Era of Gravitational Waves" Indian Institute of Technology Guwahati, Assam, India, May 18-20, 2017
May 2017	“LIGO-India: The Road Ahead” Meeting, IUCAA, Pune, May 15-16, 2017
Mat 2017	IndIGO LSC Face-to-Face (F2F) Meeting, IUCAA, India, May 14, 2017
May 2017	GW Bootcamp, IUCAA, India, May 12-13, 2017
Mar 2017	XXXV Meeting of Astronomical Society of India, B.M.Birla Planetarium, Jaipur, March 6-10, 2017
Feb 2017	IndIGO LSC Face-to-Face (F2F) Meeting, IUCAA, India, Feb 4-6, 2017
Jan 2017	Global Young Scientists' Summit , organized by National Research Foundation, Prime Minister's Office, Singapore; Singapore University of Technology and Design, 15-20 January 2017.
Oct 2016	Neighbourhood Astronomy Meeting (BU, JNP, ICTS, IIA, IISc, ISRO, RRI), ISRO, Bangalore, October 6, 2016
May 2016	XXXIV Meeting of Astronomical Society of India, University of Kashmir, Srinagar 10-13 May 2016
Apr 2016	IndIGO LSC Face-to-Face (F2F) Meeting, ICTS, Bangalore, India, April 8-9, 2016
Apr 2016	The Future of Gravitational-Wave Astronomy Discussion Meeting, ICTS, Bangalore, India, April 4-8, 2016
Mar 2016	LIGO Science Collaboration-Virgo Collaboration-Meeting, Pasadena, USA, on March 14-18, 2016
Dec 2015	International Conference On Gravitation And Cosmology (ICGC), Mohali, India, December 14-18, 2015
Dec 2015	IndIGO LSC Face-to-Face (F2F) Meeting, IISER Mohali, India, December 13, 2015
May 2015	IndIGO LSC Face-to-Face (F2F) Meeting, IUCAA, May 02, 2015
Mar 2015	IAGRG, 2015, Raman Research Institute, Bangalore, India, March 18-20, 2015
Mar 2015	Neighbourhood Astronomy Meeting (BU, JNP, ICTS, IIA, IISc, ISRO, RRI), Raman Research Institute, Bangalore, March 27, 2015
Sep 2014	Neighbourhood Astronomy Meeting (BU, JNP, ICTS, IIA, IISc, ISRO, RRI), Indian Institute of Astrophysics, Bangalore, September 8 – 9, 2014

SCHOOLS/WORKSHOPS

Jul 2017	Summer School On Gravitational-Wave Astronomy, ICTS, July 17-28, 2017, Bangalore, India
Aug 2016	Summer School On Gravitational-Wave Astronomy, ICTS, July 25 – August 5, 2016, Bangalore, India
Nov 2015	AEI-ICTS Joint Workshop On Gravitational-Wave Astronomy, ICTS, November 4-6, 2015, Bangalore, India
Jul 2015	Summer School On Gravitational Wave Astronomy, ICTS, June 29-July 10, 2015, Bangalore, India

DATA ANALYSIS/PROGRAMMING

Programming Languages	Bash, C, Fortan, Matlab, Python
Codes/Packages	LIGO Algorithms Library: https://git.ligo.org/abhirup.ghosh/lalsuite Gitlab/Github: https://gitlab.com/abhirup-ghosh https://git.ligo.org/abhirup.ghosh
Jun 2015	ISAPP 2015, School On Cosmology, June 15-25, 2015, Paris, France
Mar 2015	Workshop On Astronomy, Cosmology & Fundamental Physics With Gravitational Waves, Chennai Mathematical Institute, Chennai, India. March 2-4, 2015
Dec 2013	Advanced School And Discussion Meeting On Knot Theory And Its Applications, IISER-Mohali, 10-20 December, 2013
Dec 2009	NIUS- Astronomy Olympiad Camp At Radio Astronomy Centre (RAC)- Ooty, 2009, Winter Camp

EXTRACURRICULARS

PAINTING

Silver Medal, Shankar's International Children's Competition, 2003

Kanagawa Prize- Certificate Of Distinction, Kanagawa Biennial World Children's Art Exhibition, 2005, Kanagawa International Association, 2005

THEATRE

Member: "Amra" Theatre Group (since 2016)

- "Rege Meghe", Smaranik Theatre Festival, Bangalore, 2016

Member: "Rangmanch", Dramatics Club, IISc Gymkhana (since 2013)

- "Delayed Due to Unavoidable Circumstances":
 - First Prize, 'Admit One, 2014', National Law School National Theatre Fest
 - First Prize, Collesium, 8th Mile R.V. College of Engineering
 - Award: Best Supporting Actor, Collesium, 8th Mile R.V. College of Engineering
 - Invited Performances: Alliance Francaise (Bangalore), Rangasthala (Bangalore), JNCASR (Bangalore),

Member: "Stage Craft", Dramatics Club, NCBS (since 2015)

Member: "Drishyantor" Theatre Group (since 2011)

- "Hottomelar Opare", Presidency College, Kolkata, December, 2012

DEBATE First Prize, World Year Of Physics Debate, Bhavan's Gangabux Kanoria Vidyamandir, 2005

QUIZZING First Prize, Inter-College Green Quiz, Indo-British Scholars' Association and Maulana Azad College, 2009
 Second Prize, Heritage Student's Council, Heritage Institute Of Technology, 2009
 First Runner's Up, Maulana Azad College, Kolkata, 2010
 Third Prize, All India Intercollege Cultural Fest, Nrs Medical College, Kolkata, 2008

SPORTS Winner, Football tournament, ICTS, 2017
 Winner, Republic Day cricket tournament, 2017
 Winner, Badminton, ICTS, 2016
 Winner (Captain), Football, Annual Inter-Departmental Sports, IIT Roorkee, 2010-11
 Winner (Captain), Football, Cautley Bhawan Day, IIT Roorkee, 2011-12
 Winner, VolleyBall, Annual Inter-Departmental Sports, IIT Roorkee, 2010-11
 Runner's Up, VolleyBall, Cautley Bhawan Day, IIT Roorkee, 2010-11
 Runner's Up, Cricker, Annual Inter-Departmental Sports, IIT Roorkee, 2010-11

NON-ACADEMIC SERVICE/VOLUNTEER ROLES

2018	Founding Member, Act One, Theatre club of ICTS, Bangalore
Aug 2016 – Sep 2017	Member, Sports and Recreation Committee, ICTS, Bangalore
Nov 2016 – Sep 2017	Member, Cultural Committee, ICTS, Bangalore
May 2012-Aug 2012	Rotary Club Of Calcutta Midcity, Rendered Voluntary Social Service by giving Computer training to a few less privileged young girls
Mar 2011	Event Coordinator (Physics Department), Indian Institute Of Technology Roorkee, Cognizance 2011
2009-10	Vice-President, Presidency College Society for the Acquisition of General Knowledge (Quiz Club, Presidency College, Kolkata)
2008-09	Convenor, Presidency College Society for the Acquisition of General Knowledge (Quiz Club, Presidency College, Kolkata)

HOBBIES

A long, long time	Guitar: Proud Owner Of A Fender Stratocaster, With Recent Interests Shifting From James Patrick Page To Charlie Parker.
A long time	Photography: Owner, Without Pride, Of A Nikon D3000, But Proud To Not Have A Facebook Photography Page.

Publications¹

PhD Dissertation

1. “Testing general relativity using gravitational wave signals from the inspiral, merger and ringdown of binary black holes”, Abhirup Ghosh, Advisor: Prof. Parameswaran Ajith (<https://thesis.icts.res.in/thesis/ICTS-1572597160>)

Papers in Peer-reviewed Journals

2. Abhirup Ghosh et al. Testing general relativity using golden black-hole binaries. *Phys. Rev. D*, 94(2):021101, 2016
3. Abhirup Ghosh, Nathan K. Johnson-Mcdaniel, Archisman Ghosh, Chandra Kant Mishra, Parameswaran Ajith, Walter Del Pozzo, Christopher P. L. Berry, Alex B. Nielsen, and Lionel London. Testing general relativity using gravitational wave signals from the inspiral, merger and ringdown of binary black holes. *Class. Quant. Grav.*, 35(1):014002, 2018
4. Siddharth Dhanpal, Abhirup Ghosh, Ajit Kumar Mehta, Parameswaran Ajith, and B. S. Sathyaprakash. A no-hair test for binary black holes. *Phys. Rev. D*, 99(10):104056, 2019
5. Tousif Islam, Ajit Kumar Mehta, Abhirup Ghosh, Vijay Varma, Parameswaran Ajith, and B. S. Sathyaprakash. Testing the no-hair nature of binary black holes using the consistency of multipolar gravitational radiation. *Phys. Rev. D*, 101(2):024032, 2020
6. I. M. Romero-Shaw et al. Bayesian inference for compact binary coalescences with bilby: validation and application to the first LIGO–Virgo gravitational-wave transient catalogue. *Mon. Not. Roy. Astron. Soc.*, 499(3):3295–3319, 2020
7. Abhirup Ghosh, Samit Bhattacharyya, Somdatta Sinha, and Amit Apte. Parameter estimation in models with complex dynamics, 2017
8. Abhirup Ghosh, Richard Brito, and Alessandra Buonanno. Constraints on quasinormal-mode frequencies with LIGO–Virgo binary–black-hole observations. *Phys. Rev. D*, 103(12):124041, 2021

¹A complete list of publications can be found online on:

INSPIRE: <https://inspirehep.net/author/profile/Abhirup.Ghosh.1>

ORCID: <https://orcid.org/0000-0002-2112-8578>

Google Scholar: <https://scholar.google.co.in/citations?user=x0oyTa4AAAAJ&hl=en>

9. Deyan P. Mihaylov, Serguei Ossokine, Alessandra Buonanno, and Abhirup Ghosh. Fast post-adiabatic waveforms in the time domain: Applications to compact binary coalescences in LIGO and Virgo. 5 2021
10. Akash K. Mishra, Abhirup Ghosh, and Sumanta Chakraborty. Constraining extra dimensions using observations of black hole quasi-normal modes. 6 2021

Selected Publications from the LIGO Scientific Collaboration with my Direct Contribution

11. R. Abbott et al. Tests of general relativity with binary black holes from the second LIGO-Virgo gravitational-wave transient catalog. *Phys. Rev. D*, 103(12):122002, 2021
12. R. Abbott et al. GWTC-2: Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run. *Phys. Rev. X*, 11:021053, 2021
13. R. Abbott et al. GW190814: Gravitational Waves from the Coalescence of a 23 Solar Mass Black Hole with a 2.6 Solar Mass Compact Object. *Astrophys. J. Lett.*, 896(2):L44, 2020 [**Editorial/Paper-writing Team Member**]
14. R. Abbott et al. GW190412: Observation of a Binary-Black-Hole Coalescence with Asymmetric Masses. *Phys. Rev. D*, 102(4):043015, 2020
15. B. P. Abbott et al. Tests of General Relativity with the Binary Black Hole Signals from the LIGO-Virgo Catalog GWTC-1. *Phys. Rev. D*, 100(10):104036, 2019
16. B. P. Abbott et al. GW170817: Observation of Gravitational Waves from a Binary Neutron Star Inspiral. *Phys. Rev. Lett.*, 119(16):161101, 2017
17. B. P. Abbott et al. GW170814: A Three-Detector Observation of Gravitational Waves from a Binary Black Hole Coalescence. *Phys. Rev. Lett.*, 119(14):141101, 2017
18. Benjamin P. Abbott et al. GW170104: Observation of a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2. *Phys. Rev. Lett.*, 118(22):221101, 2017. [Erratum: *Phys.Rev.Lett.* 121, 129901 (2018)]
19. B. P. Abbott et al. Binary Black Hole Mergers in the first Advanced LIGO Observing Run. *Phys. Rev. X*, 6(4):041015, 2016. [Erratum: *Phys.Rev.X* 8, 039903 (2018)]
20. B. P. Abbott et al. Tests of general relativity with GW150914. *Phys. Rev. Lett.*, 116(22):221101, 2016. [Erratum: *Phys.Rev.Lett.* 121, 129902 (2018)]

21. B. P. Abbott et al. Observation of Gravitational Waves from a Binary Black Hole Merger. *Phys. Rev. Lett.*, 116(6):061102, 2016

Rest of my publications

22. A. Albert et al. Search for High-energy Neutrinos from Binary Neutron Star Merger GW170817 with ANTARES, IceCube, and the Pierre Auger Observatory. *Astrophys. J. Lett.*, 850(2):L35, 2017
23. A. Albert et al. Search for High-energy Neutrinos from Gravitational Wave Event GW151226 and Candidate LVT151012 with ANTARES and IceCube. *Phys. Rev. D*, 96(2):022005, 2017
24. A. Albert et al. Search for Multimessenger Sources of Gravitational Waves and High-energy Neutrinos with Advanced LIGO during Its First Observing Run, ANTARES, and IceCube. *Astrophys. J.*, 870(2):134, 2019
25. M. Soares-Santos et al. First Measurement of the Hubble Constant from a Dark Standard Siren using the Dark Energy Survey Galaxies and the LIGO/Virgo Binary–Black-hole Merger GW170814. *Astrophys. J. Lett.*, 876(1):L7, 2019
26. E. Burns et al. A Fermi Gamma-ray Burst Monitor Search for Electromagnetic Signals Coincident with Gravitational-Wave Candidates in Advanced LIGO’s First Observing Run. *Astrophys. J.*, 871(1):90, 2019
27. R. Hamburg et al. A Joint Fermi-GBM and LIGO/Virgo Analysis of Compact Binary Mergers From the First and Second Gravitational-wave Observing Runs. *Astrophys. J.*, 893:100, 2020
28. B. P. Abbott et al. Prospects for Observing and Localizing Gravitational-Wave Transients with Advanced LIGO, Advanced Virgo and KAGRA. *Living Rev. Rel.*, 21(1):3, 2018
29. B. P. Abbott et al. Prospects for observing and localizing gravitational-wave transients with Advanced LIGO, Advanced Virgo and KAGRA. *Living Rev. Rel.*, 23(1):3, 2020
30. B. P. Abbott et al. *Observation of Gravitational Waves from a Binary Black Hole Merger*. 2017
31. Benjamin P. Abbott et al. Results of the deepest all-sky survey for continuous gravitational waves on LIGO S6 data running on the Einstein@Home volunteer distributed computing project. *Phys. Rev. D*, 94(10):102002, 2016
32. B. P. Abbott et al. Search for Gravitational Waves Associated with Gamma-Ray Bursts During the First Advanced LIGO Observing Run and Implications for the Origin of GRB 150906B. *Astrophys. J.*, 841(2):89, 2017

33. Thomas D. Abbott et al. Search for continuous gravitational waves from neutron stars in globular cluster NGC 6544. *Phys. Rev. D*, 95(8):082005, 2017
34. B. P. Abbott et al. Comprehensive all-sky search for periodic gravitational waves in the sixth science run LIGO data. *Phys. Rev. D*, 94(4):042002, 2016
35. Benjamin P. Abbott et al. Effects of waveform model systematics on the interpretation of GW150914. *Class. Quant. Grav.*, 34(10):104002, 2017
36. Benjamin P. Abbott et al. Upper Limits on the Rates of Binary Neutron Star and Neutron Star–black Hole Mergers From Advanced Ligo’s First Observing run. *Astrophys. J. Lett.*, 832(2):L21, 2016
37. Benjamin P. Abbott et al. Upper Limits on the Stochastic Gravitational-Wave Background from Advanced LIGO’s First Observing Run. *Phys. Rev. Lett.*, 118(12):121101, 2017. [Erratum: Phys.Rev.Lett. 119, 029901 (2017)]
38. B. P. Abbott et al. Directly comparing GW150914 with numerical solutions of Einstein’s equations for binary black hole coalescence. *Phys. Rev. D*, 94(6):064035, 2016
39. Benjamin P. Abbott et al. All-sky search for short gravitational-wave bursts in the first Advanced LIGO run. *Phys. Rev. D*, 95(4):042003, 2017
40. Benjamin P. Abbott et al. Directional Limits on Persistent Gravitational Waves from Advanced LIGO’s First Observing Run. *Phys. Rev. Lett.*, 118(12):121102, 2017
41. B. P. Abbott et al. GW151226: Observation of Gravitational Waves from a 22-Solar-Mass Binary Black Hole Coalescence. *Phys. Rev. Lett.*, 116(24):241103, 2016
42. Thomas D. Abbott et al. Improved analysis of GW150914 using a fully spin-precessing waveform Model. *Phys. Rev. X*, 6(4):041014, 2016
43. Benjamin P. Abbott et al. Exploring the Sensitivity of Next Generation Gravitational Wave Detectors. *Class. Quant. Grav.*, 34(4):044001, 2017
44. Benjamin P. Abbott et al. The basic physics of the binary black hole merger GW150914. *Annalen Phys.*, 529(1-2):1600209, 2017
45. B. P. Abbott et al. A gravitational-wave standard siren measurement of the Hubble constant. *Nature*, 551(7678):85–88, 2017
46. B. P. Abbott et al. On the Progenitor of Binary Neutron Star Merger GW170817. *Astrophys. J. Lett.*, 850(2):L40, 2017
47. Benjamin P. Abbott et al. All-sky Search for Periodic Gravitational Waves in the O1 LIGO Data. *Phys. Rev. D*, 96(6):062002, 2017

48. B. P. Abbott et al. Search for Post-merger Gravitational Waves from the Remnant of the Binary Neutron Star Merger GW170817. *Astrophys. J. Lett.*, 851(1):L16, 2017
49. Benjamin P. Abbott et al. Search for gravitational waves from Scorpius X-1 in the first Advanced LIGO observing run with a hidden Markov model. *Phys. Rev. D*, 95(12):122003, 2017
50. Benjamin P. Abbott et al. First search for gravitational waves from known pulsars with Advanced LIGO. *Astrophys. J.*, 839(1):12, 2017. [Erratum: *Astrophys. J.* 851, 71 (2017)]
51. B. P. Abbott et al. Constraints on cosmic strings using data from the first Advanced LIGO observing run. *Phys. Rev. D*, 97(10):102002, 2018
52. Benjamin P. Abbott et al. First search for nontensorial gravitational waves from known pulsars. *Phys. Rev. Lett.*, 120(3):031104, 2018
53. B. P. Abbott et al. Estimating the Contribution of Dynamical Ejecta in the Kilonova Associated with GW170817. *Astrophys. J. Lett.*, 850(2):L39, 2017
54. B P Abbott et al. Effects of data quality vetoes on a search for compact binary coalescences in Advanced LIGO’s first observing run. *Class. Quant. Grav.*, 35(6):065010, 2018
55. B. . P. . Abbott et al. GW170608: Observation of a 19-solar-mass Binary Black Hole Coalescence. *Astrophys. J. Lett.*, 851:L35, 2017
56. Benjamin P. Abbott et al. All-sky search for long-duration gravitational wave transients in the first Advanced LIGO observing run. *Class. Quant. Grav.*, 35(6):065009, 2018
57. Benjamin P. Abbott et al. First low-frequency Einstein@Home all-sky search for continuous gravitational waves in Advanced LIGO data. *Phys. Rev. D*, 96(12):122004, 2017
58. B. P. Abbott et al. Multi-messenger Observations of a Binary Neutron Star Merger. *Astrophys. J. Lett.*, 848(2):L12, 2017
59. Benjamin P. Abbott et al. First narrow-band search for continuous gravitational waves from known pulsars in advanced detector data. *Phys. Rev. D*, 96(12):122006, 2017. [Erratum: *Phys. Rev. D* 97, 129903 (2018)]
60. B. P. Abbott et al. Upper Limits on Gravitational Waves from Scorpius X-1 from a Model-Based Cross-Correlation Search in Advanced LIGO Data. *Astrophys. J.*, 847(1):47, 2017
61. B. P. Abbott et al. Gravitational Waves and Gamma-rays from a Binary Neutron Star Merger: GW170817 and GRB 170817A. *Astrophys. J. Lett.*, 848(2):L13, 2017

62. Benjamin P. Abbott et al. Search for intermediate mass black hole binaries in the first observing run of Advanced LIGO. *Phys. Rev. D*, 96(2):022001, 2017
63. Benjamin P. Abbott et al. GW170817: Implications for the Stochastic Gravitational-Wave Background from Compact Binary Coalescences. *Phys. Rev. Lett.*, 120(9):091101, 2018
64. B. P. Abbott et al. GW170817: Measurements of neutron star radii and equation of state. *Phys. Rev. Lett.*, 121(16):161101, 2018
65. Benjamin P. Abbott et al. Search for Tensor, Vector, and Scalar Polarizations in the Stochastic Gravitational-Wave Background. *Phys. Rev. Lett.*, 120(20):201102, 2018
66. B. P. Abbott et al. Tests of General Relativity with GW170817. *Phys. Rev. Lett.*, 123(1):011102, 2019
67. B. P. Abbott et al. Constraining the p -Mode- g -Mode Tidal Instability with GW170817. *Phys. Rev. Lett.*, 122(6):061104, 2019
68. B. P. Abbott et al. Searches for Continuous Gravitational Waves from 15 Supernova Remnants and Fomalhaut b with Advanced LIGO. *Astrophys. J.*, 875(2):122, 2019
69. B. P. Abbott et al. Search for Substellar-Mass Ultracompact Binaries in Advanced LIGO's First Observing Run. *Phys. Rev. Lett.*, 121(23):231103, 2018
70. Benjamin P. Abbott et al. Full Band All-sky Search for Periodic Gravitational Waves in the O1 LIGO Data. *Phys. Rev. D*, 97(10):102003, 2018
71. B. P. Abbott et al. Properties of the binary neutron star merger GW170817. *Phys. Rev. X*, 9(1):011001, 2019
72. B. P. Abbott et al. Binary Black Hole Population Properties Inferred from the First and Second Observing Runs of Advanced LIGO and Advanced Virgo. *Astrophys. J. Lett.*, 882(2):L24, 2019
73. B. P. Abbott et al. GWTC-1: A Gravitational-Wave Transient Catalog of Compact Binary Mergers Observed by LIGO and Virgo during the First and Second Observing Runs. *Phys. Rev. X*, 9(3):031040, 2019
74. B. P. Abbott et al. Search for gravitational waves from a long-lived remnant of the binary neutron star merger GW170817. *Astrophys. J.*, 875(2):160, 2019
75. B. P. Abbott et al. Search for Transient Gravitational-wave Signals Associated with Magnetar Bursts during Advanced LIGO's Second Observing Run. *Astrophys. J.*, 874(2):163, 2019
76. B. P. Abbott et al. Search for Eccentric Binary Black Hole Mergers with Advanced LIGO and Advanced Virgo during their First and Second Observing Runs. *Astrophys. J.*, 883(2):149, 2019

77. Benjamin P Abbott et al. Model comparison from LIGO–Virgo data on GW170817’s binary components and consequences for the merger remnant. *Class. Quant. Grav.*, 37(4):045006, 2020
78. B. P. Abbott et al. Low-latency Gravitational-wave Alerts for Multimessenger Astronomy during the Second Advanced LIGO and Virgo Observing Run. *Astrophys. J.*, 875(2):161, 2019
79. B. P. Abbott et al. Directional limits on persistent gravitational waves using data from Advanced LIGO’s first two observing runs. *Phys. Rev. D*, 100(6):062001, 2019
80. Benjamin P Abbott et al. A guide to LIGO–Virgo detector noise and extraction of transient gravitational-wave signals. *Class. Quant. Grav.*, 37(5):055002, 2020
81. B. P. Abbott et al. Search for Substellar Mass Ultracompact Binaries in Advanced LIGO’s Second Observing Run. *Phys. Rev. Lett.*, 123(16):161102, 2019
82. B. P. Abbott et al. All-sky search for long-duration gravitational-wave transients in the second Advanced LIGO observing run. *Phys. Rev. D*, 99(10):104033, 2019
83. B. P. Abbott et al. Search for gravitational waves from Scorpius X-1 in the second Advanced LIGO observing run with an improved hidden Markov model. *Phys. Rev. D*, 100(12):122002, 2019
84. Rich Abbott et al. Open data from the first and second observing runs of Advanced LIGO and Advanced Virgo. *SoftwareX*, 13:100658, 2021
85. B. P. Abbott et al. Narrow-band search for gravitational waves from known pulsars using the second LIGO observing run. *Phys. Rev. D*, 99(12):122002, 2019
86. B. P. Abbott et al. Search for gravitational-wave signals associated with gamma-ray bursts during the second observing run of Advanced LIGO and Advanced Virgo. *Astrophys. J.*, 886:75, 2019
87. B. P. Abbott et al. All-Sky Search for Short Gravitational-Wave Bursts in the Second Advanced LIGO and Advanced Virgo Run. *Phys. Rev. D*, 100(2):024017, 2019
88. B. P. Abbott et al. Optically targeted search for gravitational waves emitted by core-collapse supernovae during the first and second observing runs of advanced LIGO and advanced Virgo. *Phys. Rev. D*, 101(8):084002, 2020
89. B. P. Abbott et al. Search for the isotropic stochastic background using data from Advanced LIGO’s second observing run. *Phys. Rev. D*, 100(6):061101, 2019
90. B. P. Abbott et al. Searches for Gravitational Waves from Known Pulsars at Two Harmonics in 2015-2017 LIGO Data. *Astrophys. J.*, 879(1):10, 2019. [Erratum: *Astrophys. J.* 899, 170 (2020)]

91. B. P. Abbott et al. All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO O2 data. *Phys. Rev. D*, 100(2):024004, 2019
92. B. P. Abbott et al. Search for intermediate mass black hole binaries in the first and second observing runs of the Advanced LIGO and Virgo network. *Phys. Rev. D*, 100(6):064064, 2019
93. B. P. Abbott et al. A Gravitational-wave Measurement of the Hubble Constant Following the Second Observing Run of Advanced LIGO and Virgo. *Astrophys. J.*, 909(2):218, 2021
94. B. P. Abbott et al. GW190425: Observation of a Compact Binary Coalescence with Total Mass $\sim 3.4M_{\odot}$. *Astrophys. J. Lett.*, 892(1):L3, 2020
95. R. Abbott et al. Gravitational-wave Constraints on the Equatorial Ellipticity of Millisecond Pulsars. *Astrophys. J. Lett.*, 902(1):L21, 2020
96. R. Abbott et al. GW190521: A Binary Black Hole Merger with a Total Mass of $150M_{\odot}$. *Phys. Rev. Lett.*, 125(10):101102, 2020
97. R. Abbott et al. Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog. *Astrophys. J. Lett.*, 913(1):L7, 2021
98. R. Abbott et al. Diving below the spin-down limit: Constraints on gravitational waves from the energetic young pulsar PSR J0537-6910. *Astrophys. J.*, 913:L27, 2021
99. R. Abbott et al. Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift During the LIGO-Virgo Run O3a. 10 2020
100. R. Abbott et al. All-sky search in early O3 LIGO data for continuous gravitational-wave signals from unknown neutron stars in binary systems. *Phys. Rev. D*, 103(6):064017, 2021
101. R. Abbott et al. Properties and Astrophysical Implications of the $150 M_{\odot}$ Binary Black Hole Merger GW190521. *Astrophys. J. Lett.*, 900(1):L13, 2020
102. R. Abbott et al. All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run. 7 2021
103. R. Abbott et al. Search for lensing signatures in the gravitational-wave observations from the first half of LIGO-Virgo’s third observing run. 5 2021
104. R. Abbott et al. Searches for continuous gravitational waves from young supernova remnants in the early third observing run of Advanced LIGO and Virgo. 5 2021
105. R. Abbott et al. Constraints on Cosmic Strings Using Data from the Third Advanced LIGO–Virgo Observing Run. *Phys. Rev. Lett.*, 126(24):241102, 2021
106. R. Abbott et al. Constraints on dark photon dark matter using data from LIGO’s and Virgo’s third observing run. 5 2021

107. R. Abbott et al. Observation of Gravitational Waves from Two Neutron Star–Black Hole Coalescences. *Astrophys. J. Lett.*, 915(1):L5, 2021
108. Rich Abbott et al. Search for intermediate mass black hole binaries in the third observing run of Advanced LIGO and Advanced Virgo. 5 2021
109. R. Abbott et al. All-sky Search for Continuous Gravitational Waves from Isolated Neutron Stars in the Early O3 LIGO Data. 7 2021
110. R. Abbott et al. Search for anisotropic gravitational-wave backgrounds using data from Advanced LIGO’s and Advanced Virgo’s first three observing runs. 3 2021
111. R. Abbott et al. Constraints from LIGO O3 data on gravitational-wave emission due to r-modes in the glitching pulsar PSR J0537-6910. 4 2021
112. R. Abbott et al. Upper Limits on the Isotropic Gravitational-Wave Background from Advanced LIGO’s and Advanced Virgo’s Third Observing Run. 1 2021