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Carl-Johan Haster

Experience

Aug 2022 – present **Assistant Professor of Astrophysics**,
Department of Physics & Astronomy, Nevada Center for Astrophysics,
University of Nevada, Las Vegas.
Las Vegas, NV, USA

Aug 2018 – Aug 2022 **Postdoctoral Associate**,
MIT Kavli Institute for Astrophysics and Space Research,
Massachusetts Institute of Technology.
Cambridge, MA, USA

Sept 2016 – Aug 2018 **CITA Postdoctoral Fellow**,
Canadian Institute for Theoretical Astrophysics,
University of Toronto.
Toronto, ON, Canada

Jan – May 2015 **CIERA Visiting Pre-Doctoral Fellow**,
Center for Interdisciplinary Exploration and Research in Astrophysics,
Northwestern University.
Evanston, IL, USA

June – Sept 2011 **Summer student in the PH-AID-DT Group**,
CERN.
Meyrin, Switzerland

Education

2012 – 2016 **PhD – Gravitational Wave Astrophysics**,
University of Birmingham, Birmingham, United Kingdom,
Supervised by Prof. Ilya Mandel and Prof. Alberto Vecchio.

2008 – 2012 **MPhys – Physics with Astrophysics**,
The University of Manchester, Manchester, United Kingdom, *1st class (Hons)*.

Service

May 2020 – present **Member of Editorial Team**,
LIGO/Virgo Collaboration – Compact Binary Coalescences group,
GWTC-2.1: Deep Extended Catalog of Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run [1].
186 citations

June 2020 – Aug 2020 **Postdoc representative**,
Anti-Racism Task Force, MIT Kavli Institute for Astrophysics and Space Research.

April 2018 – July 2020 **Co-chair**,
LIGO/Virgo Collaboration – Compact Binary Coalescences – Parameter Estimation group.

Dec 2017 – Feb 2020 **Postdoc representative**,
LIGO Academic Advisory Committee.

Aug 2017 – Nov 2018 **Member of Paper Writing Team**,
LIGO/Virgo Collaboration – Compact Binary Coalescences group,
Properties of the binary neutron star merger GW170817 [2].
784 citations

Aug 2017 – Sep 2017 **Member of Paper Writing Team**,
LIGO/Virgo Collaboration – Compact Binary Coalescences group,
GW170814: A Three-Detector Observation of Gravitational Waves from a Binary Black Hole Coalescence [3].
1728 citations

Nov 2016 – Aug 2018 **Organizing committee, CITA representative**,
Summer Undergraduate Research Program, Astrophysics groups, University of Toronto.

Sep 2016 – July 2020 **Run coordinator**,
LIGO/Virgo Collaboration – Compact Binary Coalescences – Parameter Estimation group,
Organizing and overseeing parameter estimation followup of gravitational wave triggers.

Invited seminars

July 2022 **Brown University – Institute for Computational & Experimental Research in Mathematics (ICERM)**, *Providence, USA*,
Inferring tidal deformability in the Black Hole compactness limit.

April 2022 **University of Virginia – Department of Physics**, *Charlottesville, USA*,
Observational signatures of tidal deformability in compact objects.

April 2022 **University of Nevada, Las Vegas – Department of Physics and Astronomy**, *Las Vegas, USA*,
Discovering the hidden Universe with gravitational waves.

February 2022 **Georgia Institute of Technology – School of Physics**, *Atlanta, USA*,
Discovering the hidden Universe with gravitational waves.

December 2021 **University of Massachusetts Dartmouth – Department of Physics**, *Virtual meeting*,
Discovering the hidden Universe with gravitational waves.

November 2021 **University of Texas at Austin – Department of Physics – Theory Group Seminar**, *Virtual meeting*,
When a black hole might not be a black hole.

November 2021 **LIGO–Virgo–KAGRA webinar**, *Recording avaliable on the LIGO–Virgo–KAGRA Youtube page*,
GWTC-2.1: A Deep Extended Catalog of Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run.

August 2021 7^{th} **Physics and Astrophysics at the eXtreme (PAX-VII) Workshop**, *Virtual meeting*,
Waveform and data analysis requirements for the next generation.

July 2021 **Aspen Center for Physics – Exploring Extreme Matter in the Era of Multimessenger Astronomy: from the Cosmos to Quarks**, *Aspen, USA*,
Neutron Star Observables from Neutron Star Mergers.

May 2021 **University of Warwick**, *Coventry, UK*,
Inferring the hidden Universe with gravitational waves.

May 2020 **Relativistic Heavy Ion Group, Massachusetts Institute of Technology**, *Cambridge, USA*,
The Neutron Star Equation of State – a GW story.

October 2019 **University of Glasgow**, *Glasgow, UK*,
Inferring the future of Gravitational Wave binary observations.

September 2019 **Cardiff University**, *Cardiff, UK*,
Validation of the non-linearities in general relativity from a population of gravitational wave observations.

August 2019 **LeptonPhoton2019**, *Toronto, Canada*,
Gravitational Wave Observations of Compact Stellar Objects.

April 2019 **Space Telescope Science Institute – Enabling Multi-Messenger Astrophysics in the Big Data Era**, *Baltimore, USA*, Gravitational Waves as a Piece of the Astrophysical Multi-messenger Puzzle .

March 2019 **Black Hole Initiative, Harvard University**, *Cambridge, USA*,
Validation of the non-linearities in general relativity from a population of gravitational wave observations.

December 2018 **Department of Astronomy, Stockholm University**, *Stockholm, Sweden*,
Gravitational wave observations of merging black holes and neutron stars.

December 2018 **CIERA, Northwestern University**, *Evanston, USA*,
The future of Gravitational Wave inference – problems to solve over the next few years.

November 2018 **APS New England Section 2018 Fall Meeting**, *Dartmouth, USA*,
Gravitational waves from compact binaries – Building evidence in what is observed.

June 2018 **Albert Einstein Institute – Workshop on Reduced Order Gravitational-Wave Modeling**, *Golm, Germany*,
Using Reduced Order Quadratures (ROQ) for Compact Binary parameter estimation.

May 2018 **Perimeter Institute – Searching for New Particles with Black Hole Superradiance**, *Waterloo, Canada*,
Where do black hole binaries come from, and can we actually know that?.

December 2017 **LIGO Laboratiory, MIT**, *Cambridge, USA*,
LIGO Seminar – *Compact Binary Inference: what can we do and what do we know*.

November 2017 **Perimeter Institute – Lights, sounds, action in strong field gravity**, *Waterloo, Canada*,
Stellar Palaeontology: Information Learnt From Gravitational Wave Observations.

June 2017 **Nordita – The Physics of Extreme Gravity Stars**, *Stockholm, Sweden*,
Parameter estimation of binary black hole observations.

February 2017 **Aspen Center for Physics – The Dawning Era of Gravitational-Wave Astrophysics**, *Aspen, USA*,
Precision measurement of black hole mergers.

Conference presentations

April 2022 **APS April Meeting 2022**, *New York, USA*.

July 2021 **14th Edoardo Amaldi Conference on Gravitational Waves**, *Virtual meeting*.

April 2021 **APS April Meeting 2021**, *Virtual meeting*.

April 2019 **Space Telescope Science Institute – Spring Symposium**, *Baltimore, USA*.

April 2019 **APS April Meeting 2019**, *Denver, USA*.

Dec 2018 **Columbia University – Future by the future**, *New York, USA*.

June 2018 **Numerical Relativity beyond General Relativity**, *Benasque, Spain*.

April 2018 **APS April Meeting 2018**, *Columbus, USA*.

July 2017 **Niels Bohr Institute – Kavli Summer Program in Astrophysics**, *Copenhagen, Denmark*.

January 2017 **APS April Meeting 2017**, *Washington DC, USA*.

Awards and honours

June 2017 **2016 GWIC and Stefano Braccini Thesis Prizes**, *Honorable mention*.

January 2017 **Springer Thesis Prize**, *Thesis published by Springer Theses*.

Dec 2016 **Special Breakthrough Prize in Fundamental Physics**, *as member of the LIGO Scientific Collaboration*.

July 2016 **Gruber Cosmology Prize**, *as member of the LIGO Scientific Collaboration*.

Nov 2014 **CIERA Visiting Pre-Doctoral Fellowship**.

June 2012 **Tesella Prize for Software**, *University of Manchester, School of Physics and Astronomy*.

April 2011 **Summer Studentship**, *PH-AID-DT Group, CERN*.

Teaching and mentoring experience

Sept 2020 – Dec 2020 **Participant in the Kaufman Teaching Certificate Program**,
MIT Teaching + Learning Lab, Massachusetts Institute of Technology, USA.

July 2019 – Aug 2019 **Summer student supervisor**,
LIGO Laboratory - Data Analysis Group, Massachusetts Institute of Technology, USA.

Sept 2018 – present **Graduate student mentor**,
LIGO Laboratory - Data Analysis Group, Massachusetts Institute of Technology, USA.

May 2017 – Aug 2017 **Summer student supervisor**,
CITA, University of Toronto, Canada.

May 2017 & May 2018 **Organizer and Tutor**,
CTA200H - computing course for summer students, University of Toronto, Canada.

May 2015 – Aug 2015 **Summer student supervisor**,
School of Physics and Astronomy, University of Birmingham, UK.

Oct 2012 – Dec 2015 **Demonstrator for Undergraduate Physics Lab**,
School of Physics and Astronomy, University of Birmingham, UK.

Referee

May 2018 – present **Referee for Physical Review D and Physical Review Letters**.

Dec 2016 – present **Referee for the Astrophysical Journal and the Astrophysical Journal Letters**.

Publications written for the LIGO/Virgo Collaboration

- [1] Abbott, R. et al., (LIGO Scientific Collaboration, Virgo Collaboration). GWTC-2.1: Deep Extended Catalog of Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run, 8 2021, 2108.01045.
- [2] Abbott, B. P. et al., (LIGO Scientific Collaboration, Virgo Collaboration). Properties of the binary neutron star merger GW170817. *Phys. Rev.*, X9(1):011001, 2019, 1805.11579.
- [3] Abbott, B. P. et al., (LIGO Scientific Collaboration, Virgo Collaboration). GW170814: A Three-Detector Observation of Gravitational Waves from a Binary Black Hole Coalescence. *Phys. Rev. Lett.*, 119(14):141101, 2017, 1709.09660.