Swami Vivekanandji Chaurasia Résumé

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Personal Profile

I am currently a Postdoc in the Computational High-Energy Astrophysics group at the Oskar Klein Centre, Department of Astronomy, Stockholm University. My work focuses on the interplay between analytical and numerical relativity and their use to gain deeper insights in the astrophysics of compact objects, cosmology, black hole physics and physics beyond the standard model. I completed my doctoral study in the numerical relativity group of Prof. Bernd Brügmann at the Theoretical Physics Insititue, Jena under the dissertation topic "Neutron Stars in Numerical Relativity".

Education

2016-2020 Doctoral Student - Theoretical Physics Institute, University of Jena

2011-2016 Integrated MSc in Physics - Centre For Excellence In Basic Sciences, Mumbai

Professional Experience

2020-current Postdoc - The Oskar Klein Centre, Stockholm University

2016-2020 Research Assistant-Theoretical Physics Institute, University of Jena

Scholarships/Grants

2020-current "Gravitational Radiation and Electromagnetic Astrophysical Transients (G.R.E.A.T) under Dnr. 2016-06012

2016-2018 DFG Research Training Group 1523/2 "Quantum and Gravitational Fields"

2014 S. N. Bhatt Memorial Excellence Fellowship, ICTS- Bangalore.

2011-2016 INSPIRE Fellowship of the Department of Science and Technology (DST), Government of India

Publications

Journal Articles

- A. Rashti, F.M Fabbri, B Brügmann, S.V Chaurasia, T. Dietrich, M. Ujevic, W. Tichy 2022 New pseudospectral code for the construction of initial data, *Phys. Rev. D 105, 104027*
- S.V Chaurasia, T. Dietrich, and S. Rosswog 2021 Black hole-neutron star simulations with the BAM code: First tests and simulations, *Phys. Rev. D 104, 084010*
- S.V Chaurasia, T. Dietrich, M. Ujevic, K. Hendriks, R. Dudi, F.M Fabbri, W. Tichy, and B. Brügmann 2020 Gravitational waves and mass ejecta from binary neutron star mergers: Effect of the spin orientation, *Phys. Rev. D 102, 024087*
- T. Dietrich, D. Radice, S. Bernuzzi, F. Zappa, A. Perego, B. Brügmann, S.V Chaurasia, R. Dudi, W. Tichy and M. Ujevic 2018 CoRe database of binary neutron star merger waveforms, *Class.Quant.Grav. 35 (2018) no.24, 24LT01*
- S.V Chaurasia, T. Dietrich, N.K. Johnson-McDaniel, M. Ujevic, W. Tichy, and B. Brügmann 2018 Gravitational waves and mass ejecta from binary neutron star mergers: Effect of large eccentricities, *Phys. Rev. D 98, 104005*

- D. Keitel, X.J Forteza, S. Husa, L. London, S. Bernuzzi, E. Harms, A. Nagar, M. Hannam, S. Khan, M. Pürrer, G. Pratten, and S.V Chaurasia 2017 The most powerful astrophysical events: gravitational-wave peak luminosity of binary black holes as predicted by numerical relativity, *Phys. Rev. D 96, 024006*

Dissertation

- S.V Chaurasia 2020, Neutron stars in numerical relativity, *URN: urn:nbn:de:gbv:27-dbt-20200706-115524-008*

Proceedings without peer-review

- T. Dietrich, S. Bernuzzi, B. Brügmann, S. V. Charausia, R. Dudi, D. Radice, W. Tichy, M. Ujevic, Binary Neutron Star Merger Simulations, in P. Bastian, D. Kranzlmüller, H. Brüchle, M. Brehm (Eds.), High Performance Computing in Science and Engineering - Garching/Munich 2018, ISBN 978-3-9816675-2-3.

Teaching

2018-2019 WS: Machine Learning Lab Sessions (Python); SS: Computational Physics Lab Sessions (C)

2017-2018 WS: General Relativity Exercise Sessions; SS: Computational Physics Lab Sessions (C)

2016-2017 WS: General Relativity Exercise Sessions; SS: Computational Physics Lab Sessions (C)

WS: Winter Semester; SS: Summer Semester

Talks/Workshops

- DPG-München-2019: *Eccentric Binary Neutron Stars In Numerical Relativity*, Munich
- PHAROS meeting-2019, Jena
- SuperMUC Status and Results Workshop-2018: *Numerical relativity simulations of generic neutron star binaries*, Leibniz-Rechenzentrum, Garching, Munich
- *Introduction to Parallel Programming with MPI and OpenMP*-2018, Jülich Supercomputing Centre (Germany)
- *Neutron Stars In Numerical Relativity: Updates from the Jena group*-2018, ICTS-Bangalore
- The Physics of Extreme-Gravity Stars Workshop-2017: *Eccentric Binary Neutron Star Mergers*, Stockholm

Computer Skills

- **Programming Languages:** C/C++, Python, MATLAB, Mathematica, Scripting: Bash
- High Performance Computing, Parallel Programming (MPI and Open MP)
- **Visualization Tools:** VisIt, ParaView, matplotlib, seaborn
- **Operating Systems:** Linux, Windows
- **Other skills:** Git, basic HTML, LaTeX

Interests

- **Cycling, Travelling, Hiking**
- **Music, Reading, Photography**

Referees

Name	Bernd Brügmann	Tim Dietrich	Wolfgang Tichy
Affiliation	University of Jena	University of Potsdam	Florida Atlantic University
Position	Professor	Professor	Professor
Contact	bernd.bruegmann@uni-jena.de	tim.dietrich@uni-potsdam.de	wolf@fau.edu