

# Curriculum Vitae

## Rahul Jain

Dual Ph.D. Candidate

[Dept. of Physics and Astronomy](#)

[Dept. of Computational Mathematics, Science and Engineering \(CMSE\)](#)

[Michigan State University](#)

Graduate Research Assistant

[Facility for Rare Isotope Beams \(FRIB\)](#)

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## Employment

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### Graduate Research Assistant

Summer 2019 - Present

Facility for Rare Isotope Beams

[Nuclear Astrophysics Group - Prof. Hendrik Schatz](#)

### Teaching Assistant

Fall 2018 - Spring 2019

Dept. of Physics and Astronomy, Michigan State University

PHY-252 (Intro. Physics Lab. for non-physics majors)

PHY-431 (Advanced Undergraduate Optics Lab.)

Fall 2018

Spring 2019

## Research Experience

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### Visiting International Research Student

January 2018 - July 2018

TRIUMF, University of British Columbia, Vancouver

Advisor: [Prof. Reiner Krüecken](#)

### Jagadish Endowment Scholar

May 2017 - July 2017

Dept. of Nuclear Physics, Australian National University, Canberra

Advisor(s): [Prof. Mahananda Dasgupta](#) and [Prof. David Hinde](#)

### CERN Summer Student

May 2016 - July 2016

ATLAS Collaboration, CERN, Geneva

Advisor: [Prof. Melissa Franklin](#)

### Summer Research Fellowship Program

May 2015 - July 2015

Indian Academy of Sciences, Anna University, Chennai

Advisor: [Prof. K Murali](#)

## Education

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- Michigan State University**, East Lansing, MI August 2018 - Present  
 Dual Ph.D. in Physics and CMSE  
 Focus: Experimental Nuclear Astrophysics and Bayesian Inference  
 Tentative Thesis: Heating and Cooling in Accreting Neutron Star Crusts  
 Advisor: [Prof. Hendrik Schatz](#)  
 Co-advisor: [Prof. Witold Nazarewicz](#)
- Michigan State University**, East Lansing, MI August 2018 - July 2021  
 M.S. in Physics  
 Advisor: [Prof. Hendrik Schatz](#)
- Indian Institute of Technology Roorkee**, Roorkee, India July 2013 - July 2018  
 Integrated M.Sc. in Physics with minor in Computer Science and Engineering  
 CGPA: 8.51/10 ( $\equiv$  90%)  
 Passed with Distinction and Gold Medalist  
 Advisor: [Prof. Moumita Maiti](#)

## Awards & Fellowships

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- [7] [Konrad Gelbke Award \(Honorable Mention\)](#) April 2022  
 Dept. of Physics and Astronomy, Michigan State University
- [6] [AGEP Student Success Conference 2021](#) November 2021  
 1<sup>st</sup> Place for Oral Presentation titled “*X-rays from the Space*”  
 The Graduate School, Michigan State University
- [5] [IITR ENCORE Award](#) November 2016  
 Indian Institute of Technology Roorkee
- [4] [Annual Excellence Award](#) April 2015, 2016, 2017  
 IIT Roorkee Heritage Foundation
- [3] [Kishor Vaigyanik Protsahan Yojana - Young Scientist Fellowship](#) December 2014  
 Indian Institute of Sciences, Bangalore
- [2] [INSPIRE Scholarship for Higher Education](#) July 2013  
 Department of Science and Technology, Govt. of India
- [1] [National Talent Search Scholarship](#) September 2009  
 National Council of Educational Research and Training, India

## Publications

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[7] “Evidence of a Near-Threshold Resonance in  $^{11}\text{B}$  Relevant to the  $\beta$ -Delayed Proton Emission of  $^{11}\text{Be}$ ”

Y. Ayyad, W. Mittig, T. Tang, B. Olaizola, G. Potel, N. Rijal, N. Watwood, H. Alvarez-Pol, D. Bazin, M. Caamaño, J. Chen, M. Cortesi, B. Fernández-Domínguez, S. Giraud, P. Gueye, S. Heinitz, **R. Jain**, B. P. Kay, E. A. Maugeri, B. Monteagudo, F. Ndayisabye, S. N. Paneru, J. Pereira, E. Rubino, C. Santamaria, D. Schumann, J. Surbrook, L. Wagner, J. C. Zamora, V. Zelevinsky

*Physical Review Letters* **129**, 012501 (2022)

[6] “ $^{57}\text{Zn}$   $\beta$ -delayed proton emission establishes the  $^{56}\text{Ni}$  rp-process waiting point bypass”

M. Saxena, W. -J Ong, Z. Meisel, D.E.M. Hoff, N. Smirnova, P.C. Bender, S.P. Burcher, M.P. Carpenter, J.J. Carroll, A. Chester, C.J. Chiara, R. Conaway, P.A. Copp, B.P. Crider, J. Derkin, A. Estradé, G. Hamad, J.T. Harke, **R. Jain**, H. Jayatissa, S.N. Liddick, B. Longfellow, M. Mogannam, F. Montes, N. Nepal, T.H. Ogunbeku, A.L. Richard, H. Schatz, D. Soltesz, S.K. Subedi, I. Sultana, A.S. Tamashiro, V. Tripathi, Y. Xiao, R. Zink

*Physics Letters B* **829**, 137059 (2022)

[5] “Online Bayesian optimization for a recoil mass separator”

S. A. Miskovich, F. Montes, G. P. A. Berg, J. Blackmon, K. A. Chipps, M. Couder, C. M. Deibel, K. Hermansen, A. A. Hood, **R. Jain**, T. Ruland, H. Schatz, M. S. Smith, P. Tsintari, L. Wagner

*Physical Review Accelerators and Beams* **25**, 044601 (2022)

[4] “SECAR: A recoil separator for nuclear astrophysics”

Pelagia Tsintari, Ruchi Garg, Georg Berg, Jeff Blackmon, Kelly Chipps, Manoel Couder, Catherine Deibel, Nikolaos Dimitrakopoulos, Uwe Greife, Ashley Hood, **Rahul Jain**, Caleb Marshall, Zach Meisel, Sara Miskovich, Fernando Montes, Georgios Perdikakis, Thomas Ruland, Hendrik Schatz, Kiana Setoodehnia, Michael Smith, Louis Wagner

*EPJ Web of Conferences* **260**, 11044 (2022)

[3] “The impact of neutron transfer on heating and cooling of accreted neutron star crusts”

H. Schatz, Z. Meisel, E.F. Brown, S.S. Gupta, G.W. Hitt, W.R. Hix, **R. Jain**, R. Lau, P. Möller, W.-J. Ong, P.S. Shternin, Y. Xu, M. Wiescher

*The Astrophysical Journal* **925**, 205 (2022)

[2] “Precision mass measurement of lightweight self-conjugate nucleus  $^{80}\text{Zr}$ ”

A. Hamaker, E. Leistenschneider, **R. Jain**, G. Bollen, S. A. Giuliani, K. Lund, W. Nazarewicz, L. Neufcourt C. R. Nicoloff, D. Puentes, R. Ringle, C. S. Sumithrarachchi, I. T. Yandow

*Nature Physics* **17**, 1408-1412 (2021)

[1] “First direct measurement of  $^{59}\text{Cu}(p, \alpha)^{56}\text{Ni}$ : A step towards constraining the Ni-Cu cycle in the cosmos”

J. S. Randhawa, R. Kanungo, J. Refsgaard, P. Mohr, T. Ahn, M. Alcorta, C. Andreoiu, S. S. Bhattacharjee, B. Davids, G. Christian, A.A. Chen, R. Coleman, P. Garrett, G.F. Grinyer, E. Gyabeng Fuakye, G. Hackman, **R. Jain**, K. Kapoor, R. Krücken, A. Laffoley, A. Lennarz, J. Liang, Z. Meisel, N. Nikhil, A. Psaltis, A. Radich, M. Rocchini, N. Saei, M. Saxena, M. Singh, C. Svensson, P. Subramaniam, A. Talebitaher, S. upadhyayula, C. Waterfield, J. Williams, M. Willaims

*Physical Review C Letters* **104**, L042801 (2021)

## Leadership Experience

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- [5] **MSU Engineering Graduate Leadership Fellowship** January 2021 - May 2022  
Symposium Fellow, College of Engineering, Michigan State University
- [4] **JINA Conferences Organizing Committee Member**  
JINA Frontiers in Nuclear Astrophysics May 2022  
JINA Horizons Junior Workshop December 2020
- [3] **IReNA Steering Committee Member** October 2020 - Present  
Graduate Students Representative  
Founded IReNA Young Researchers' Organization
- [2] **JINA Conferences Organizing Committee Member**  
JINA Frontiers in Nuclear Astrophysics May 2022  
JINA Horizons Junior Workshop December 2020
- [1] **JINA Conferences Organizing Committee Member**  
JINA Frontiers in Nuclear Astrophysics May 2022  
JINA Horizons Junior Workshop December 2020

## Professional Development Activities

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- [27] Reviewer for: *the Astrophysical Journal*, *Astrophysics and Space Science*, *CRC Press*, *European Physical Journal A*, *International Journal of Mass Spectrometry*, *Journal of Physics G*, *Monash University*, *Monthly Notices of the Royal Astronomical Society*, *Monthly Notices of the Royal Astronomical Society Letters*, *Physics Letters B*, *Physical Review Letters*, *U.S. Department of Energy*, *U.S. National Science Foundation*.
- [26] Co-organizer: Conference on the Intersections of Particle and Nuclear Physics (CIPANP) May 30 - June 5, 2022  
Buena Vista, Florida, USA