For more resources and information, see www.jinaweb.org
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JINA-CEE One-Page Overview

Purpose: The Joint Institute for Nuclear Astrophysics Center for the Evolution of the Elements (JINA-CEE) is the 3rd in series of JINA centers, aimed at understanding the origin of the elements ("major activity 1") and the physics of matter at extreme density ("major activity 2"). JINA-CEE is transitioning from being a National Science Foundation Physics Frontier Center over the next two years. For the vision and history, see: https://www.jinaweb.org/about-jina-cee/vision-history.

Membership: JINA presently comprises of 4 core institutions (Michigan State University, University of Notre Dame, University of Washington, University of Arizona) and roughly two-dozen associated institutions throughout the world. To join, see: https://www.jinaweb.org/about-jina-cee/participate-or-become-member.

Support: JINA supports the nuclear astrophysics community through outreach events, schools for early career scientists, workshops, seminar series, facilitating scientific collaborations, and developing and supporting tools for nuclear astrophysics research. Support includes funds for travel, particularly directed at students and postdoctoral research associates. Calls for funding requests are typically associated with meeting announcements. Information on requesting support for scientific visits can be found here: https://www.jinaweb.org/collaborations/visitors.

Research Tools: JINA has led the development and maintenance of several software and data products, such as the JINA Stellar Abundance Database, Reaclib nuclear reaction rate library, AZURE R-matrix program for nuclear reactions data analysis, and dStar code for neutron star crust cooling calculations, and made several significant contributions to the MESA stellar evolution code and NuGrid tools for postprocessing nucleosynthesis. JINA has led the development of major pieces of research instrumentation, including the St. George and SECAR recoil separators, CASPAR underground accelerator, and HABANERO neutron detector.

Science Highlights: JINA research has resulted in over 1,000 publications to date on a broad range of topics in nuclear astrophysics. Examples of initiatives and sample publications are:

- **The R-Process Alliance**: A collaboration to combine observations, theory and modeling, and experiments from multiple fields to investigate different aspects of the *r*-process.
  See e.g. T. Hansen+ ApJ 858, 92 (2018) and E. Holmbeck+ ApJS 249, 30 (2020)
- **Neutron star surfaces to cores**: A coordinated effort to follow accreting neutron star physics from X-ray bursts through crust reactions and the associated observables.
  See e.g. R. Lau+ ApJ 859, 62 (2018) and Z. Meisel+ PRC 101, 052801(R) (2020)
- ***i*-process nucleosynthesis**: Targeted research exploring the contribution of neutron-capture at intermediate neutron densities to the cosmic abundances.
  See e.g. R. Lewis+ PRC 99, 034601 (2019) and J. McKay+ MNRAS 491, 5179 (2020)
- **Gravitational waves as dense matter probes**: Constraining the dense matter EoS.
  See e.g. M. Forbes+ PRD 100, 083010 (2019) and M. Al-Mamun+ arXiv:2008.12817
- **First stars:** Nucleosynthesis in the early universe
  See e.g. R. Windhorst+ ApJS 234, 41 (2018) and Q. Liu+ PRC 101, 025808 (2020)