

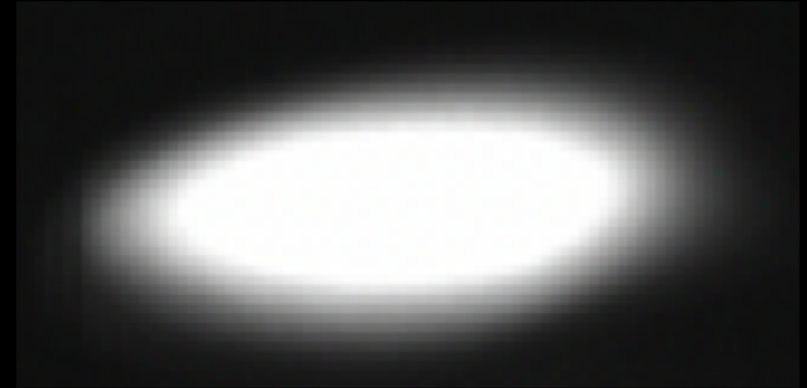
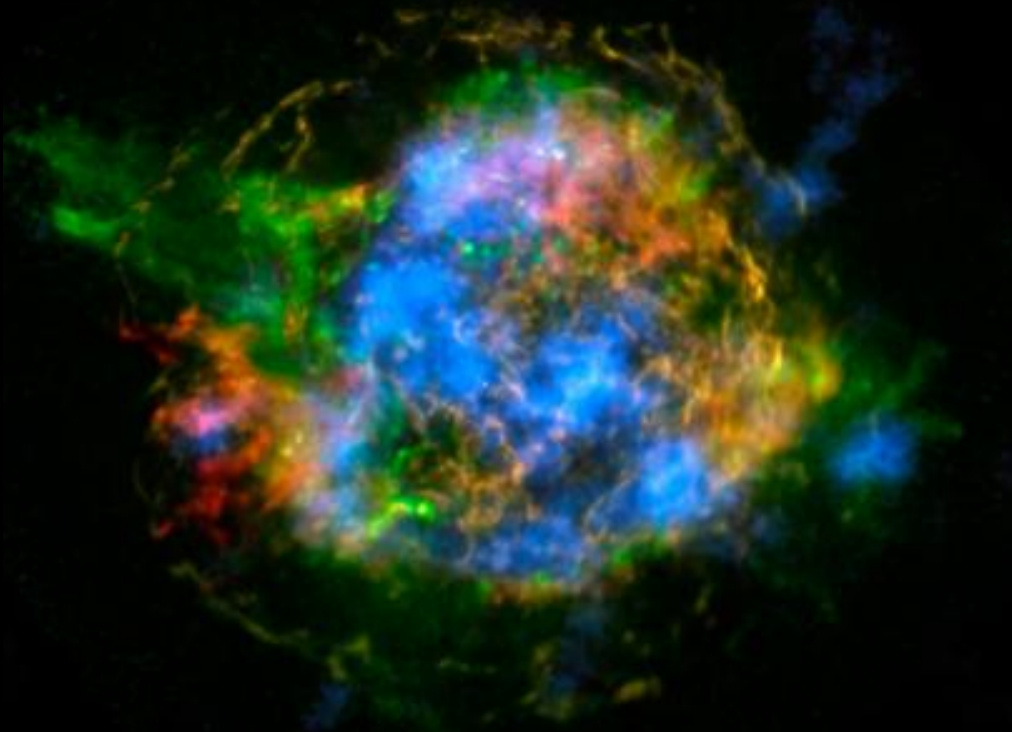
DEIA in Nuclear Astrophysics

A Summary from the JINA Horizons White Paper

Hendrik Schatz

Michigan State University

Joint Institute for Nuclear Astrophysics





A New White Paper for Nuclear Astrophysics

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Horizons: Nuclear Astrophysics in the 2020s and Beyond

H Schatz^{1,2,3}, A D Becerril Reyes^{2,3}, A Best^{4,5}, E F Brown^{1,2,6,3}, K Chatziioannou^{7,8}, K A Chipps^{9,10}, C M Deibel¹¹, R Ezzeddine^{12,3}, D K Galloway^{13,14,15}, C J Hansen^{16,17,18}, F Herwig^{19,3}, A P Ji^{20,21}, M Lugaro^{22,23,13}, Z Meisel^{24,3}, D Norman²⁵, J S Read²⁶, L F Roberts²⁷, A Spyrou^{1,2,3}, I Tews²⁸, F X Timmes^{29,3}, C Travaglio³⁰, N Vassh³¹, C Abia³², P Adsley³³, S Agarwal^{34,3}, M Aliotta³⁵, W Aoki^{36,37}, A Arcones^{38,39}, A Aryan⁴⁰, A Bandyopadhyay⁴⁰, A Banu⁴¹, D W Bardayan^{42,3}, J Barnes⁴³, A Bauswein³⁹, T C Beers^{42,3}, J Bishop⁴⁴, T Boztepe⁴⁵, B Côté^{19,22,3}, M E Caplan⁴⁶, A E Champagne^{47,48}, J A Clark^{49,3}, M Couder^{42,3}, A Couture⁵⁰, S E de Mink^{51,52}, S Debnath⁵³, R J deBoer⁵⁴, J den Hartogh²², P Denissenkov^{19,3}, V Dexheimer⁵⁵, I Dillmann^{56,19,3}, J E Escher⁵⁷, M A Famiano^{34,3,58}, R Farmer⁵¹, R Fisher⁵⁹, C Fröhlich^{60,3}, A Frebel⁶¹, C Fryer⁶², G Fuller⁶³, A K Ganguly⁶⁴, S Ghosh⁶⁰, B K Gibson⁶⁵, T Gorda^{66,67}, K N Gourgouliatos⁶⁸, V Graber^{69,70}, M Gupta⁷¹, W Haxton^{72,73}, A Heger^{13,14,74,3}, W R Hix^{9,10}, W C G Ho⁷⁵, E M Holmbeck^{76,3}, A A Hood⁴⁴, S Huth^{66,77}, G Imbriani⁴, R G Izzard⁷⁸, R Jain^{1,2,3}, H Jayatissa⁷⁹, Z Johnston^{1,3}, T Kajino^{36,37,80}, A Kankainen⁸¹, G G Kiss⁸², A Kwiatkowski^{56,19}, M La Cognata⁸³, A M Laird⁸⁴, L Lamia^{85,83,86}, P Landry⁸⁷, E Laplace^{88,52}, K D Launey¹¹, D Leahy⁸⁹, G Leckenby^{31,90}, A Lennarz^{31,91}, B Longfellow⁵⁷, A E Lovell²⁸, W G Lynch^{1,2}, S M Lyons^{92,3}, K Maeda⁹³, E Masha⁹⁴, C Matei⁹⁵, J Merc^{96,97}, B Messer^{98,10}, F Montes^{2,3}, A Mukherjee^{99,100}, M Mumpower^{28,62,3}, D Neto¹⁰¹, B Nevins^{1,2,3}, W G Newton¹⁰², L Q Nguyen⁵⁴, K Nishikawa¹⁰³, N Nishimura^{104,105}, F M Nunes^{2,1}, E O'Connor¹⁰⁶, B W O'Shea^{6,1,2,3}, W-J Ong^{57,3}, S D Pain^{9,10}, M A Pajkos^{1,6,3}, M Pignatari^{22,107,108}, R G Pizzone⁸³, V M Placco²⁵, T Plewa¹⁰⁹, B Pritychenko¹¹⁰, A Psaltis^{38,108}, D Puentes^{1,2}, Y-Z Qian¹¹¹, D Radice^{112,113,114}, D Rapagnani^{4,5}, B M Rebeiro^{115,116}, R Reifarh¹⁶, A L Richard^{57,2}, N Rijal², I U Roederer^{117,3}, J S Rojo¹¹⁸, J S K¹¹⁹, Y Saito^{90,56}, A Schwenk^{66,77,120}, M L Sergi^{85,83}, R S Sidhu^{39,120,35}, A Simon⁵⁴, T Sivarani¹²¹, Á Skúladóttir^{122,123}, M S Smith⁹, A Spiridon¹²⁴, T M Sprouse^{28,62}, S Starrfield²⁹, A W Steiner^{125,9}, F Strieder¹²⁶, I

Sultana^{127,3}, R Surman^{54,3}, T Szücs⁸², A Tawfik¹²⁸, F Thielemann^{129,39}, L Trache¹²⁴, R Trappitsch^{130,108}, M B Tsang², A Tumino^{131,83}, S Upadhyayula³¹, J O Valle Martínez¹³², M Van der Swaelmen¹²³, C Viscasillas Vázquez¹³³, A Watts⁵², B Wehmeyer^{22,134}, M Wiescher^{42,35,3}, C Wrede^{1,2}, J Yoon^{135,3}, R G T Zegers^{1,2,3}, M A Zermarek¹³⁶, M Zingale¹³⁷

Organized by JINA, IReNA Partner Networks

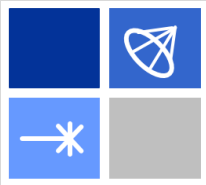
- 579 participants JINA Horizon Meeting December 2020
- White Paper: 165 co-authors from 20 countries
- Includes:
 - Scientific vision
 - DEIA vision
 - Needs of early career scientists
 - Importance of centers
 - Importance of (international) collaboration
- Accepted for Publication at JPG— available for scientists on arXiv:2205.07996

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IReNA

NSF AccelNet Network of Networks

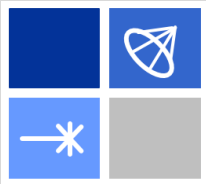


Integration of DEIA and Science on Equal Footing

- Treated DEIA on equal footing with the science as an essential goal for the field to be successful.
 - Invited talk
 - Breakout session
 - White paper section
- DEIA is different
 - We were mostly not experts (with some exceptions, e.g. Dara Norman from Nori Lab)
 - Its personal: people in the room are personally affected
 - Everybody has to engage
 - Chose breakout into small groups and collected written thoughts from each group
- Success can be defined at different levels
 - Treating it on equal footing at the meeting gave it the visibility, seriousness, and priority it needs and fosters broad buy-in
 - Same for it being its own section in the white paper – lots of discussion also during writing
 - Integration can hopefully serve as a model

... but what does it say?

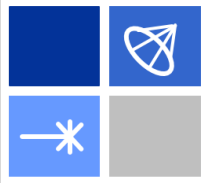




How Did we Get Here: State of the Field

- Some progress with gender representation
 - Women participation at conferences in nuclear astrophysics has reached ~30% (41% of Horizon Speakers were women)
 - JINA had 38% women grad students
- Nuclear astrophysics
 - Interdisciplinarity is a benefit – can learn from other fields
 - Internationality is a benefit – we can learn and we can impact other communities (where we do send students/postdocs for example)
 - Centers like JINA can play an important role in facilitating this exchange and disseminating/impacting a large part of the community
- Diversity record on minorities in nuclear physics (and nuclear astrophysics) is dismal
 - Fraction of Black students among physics bachelors dropped from 1999 to 2020 from 4.8 to 3.1%
 - This numbers make it look better than it is as vast majority of degrees are awarded by a few HBCUs (so most other US universities have close to zero students)
 - Fraction of physics doctorates awarded to Black students has dropped below 1%

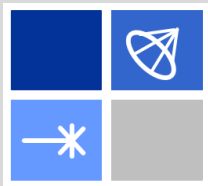




What Needs to be Done?

- Treat diversity goals on an equal footing with scientific goals
- Committed leadership
- Provide incentives to promote DEIA goals
 - Promotion, funding (funding agencies)
- Address barriers (they are there, otherwise we would have population level numbers)
- Address bias
- Retention
 - Recruiting makes no sense if retention is not addressed
 - Sense of belonging in field, department, ...
 - Affirm identity as scientist at early career stage,
 - Investment in resources for students
- Outreach
 - Ensure marginalized communities are reached
 - Address barriers for participation (e.g. internet access, computing access)



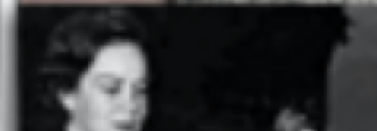
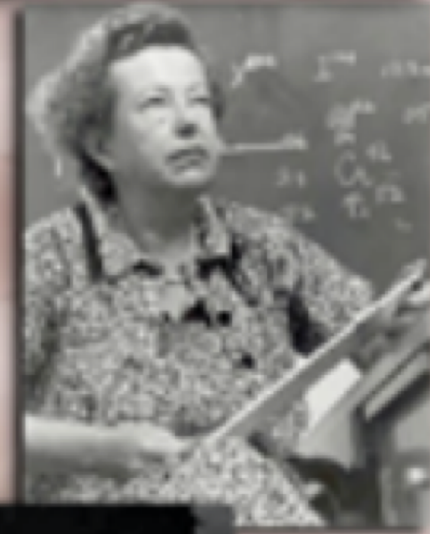


What Needs to be Done? Role of Centers?

- Centers and Networks like JINA or the newly proposed CeNAM play an important role
- Codes of Conduct
 - Not just focused on illegal activities, discrimination, harassment – but expectation of inclusive and welcoming environment, respectful interactions, no bullying,
 - Tracking code of conduct violations
- Open access to data, resources, knowledge, and ideas
 - Centers can facilitate this greatly
- Online access to meetings
 - Centers organize large numbers of meetings and can experiment, spearhead new approaches to integrate online access
- Buy-in
 - Centers and large collaborations reach a large part of the community
 - Centers bring together people from different disciplines
- Mentoring
 - Centers can facilitate multi-institutional mentoring networks
- Training
 - Centers and large collaborations reach a large part of the community
- Collect and monitor metrics



2021 Calendar



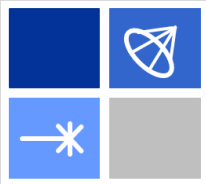
presented by COST Action ChETEC

Led by M. Lugaro (Hungary), C. Hampton (US)

Originated in ChETEC partner network

IReNA a NSF AccelNet Network of Networks disseminated across the world

Women Scientists Who Made Nuclear Astrophysics



Summary

- Progress has been achieved in gender diversity but we are nowhere near to where we need to be
- The track record of the field in diversity in other underrepresented groups is dismal
- Interdisciplinary, multi-institutional, and international centers can make important contributions
- We need broad community buy-in and a concerted effort to make DEIA goals a priority for all members of the field, on equal footing with the scientific goals.
 - While recognizing the differences – discussions need to be mindful and safe
- We need to transition from identifying what should be done to making and sustaining actual changes through equity-minded approaches that acknowledge the differing needs of individuals.
 - All members of the community have a role to play.
 - Individual actions in these roles may range from individual and personal to using influence to establish inclusive policies and procedures in their collaborations, departments and universities.

