

# Ian U. Roederer, PhD

# Curriculum Vitae

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## Education

**PhD**, Astronomy, University of Texas, Austin, Texas 2010  
**MA**, Astronomy, University of Texas, Austin, Texas 2007  
**BS**, Astronomy (with dept. honors), Indiana University, Bloomington, Indiana 2005  
**BS**, Physics, Indiana University, Bloomington, Indiana 2005

## Appointments

**Associate Professor**, Department of Physics, North Carolina State University 2023–  
**Research Professor**, Department of Astronomy, University of Michigan 2021–2023  
**Intermittent Lecturer**, Department of Astronomy, University of Michigan 2014–2023  
**Associate Research Scientist**, Department of Astronomy, University of Michigan 2017–2021  
**Assistant Research Scientist**, Department of Astronomy, University of Michigan 2013–2017  
**Carnegie Fellow**, Carnegie Observatories, Pasadena, California 2010–2013

## Grants

– Total of \$2,073,367 to my institution

### **NSF**

Co-PI, Astronomy & Astrophysics Research Grant AST 2205847: \$588,370 2022–2025  
Co-PI, Astronomy & Astrophysics Research Grant AST 1815403: \$329,793 2018–2022  
PI, Astronomy & Astrophysics Research Grant AST 1613536: \$144,914 2016–2019

### **NASA**

PI, *Astrophysics Data Analysis Program* 80NSSC21K0627: \$185,197 2021–2024  
PI, *Hubble Space Telescope* GO-17166: \$86,796 2023–2026  
PI, *Hubble Space Telescope* AR-16630: \$80,725 2021–2023  
PI, *Hubble Space Telescope* GO-15657: \$66,821 2019–2022  
PI, *Hubble Space Telescope* AR-15051: \$68,070 2017–2020  
PI, *Hubble Space Telescope* GO-14765: \$72,844 2016–2019  
PI, *Hubble Space Telescope* GO-14232: \$57,609 2016–2019  
PI, *Hubble Space Telescope* GO-13827: \$46,472 2016–2019  
PI, *Hubble Space Telescope* GO-14231: \$54,292 2015–2018  
PI, *Hubble Space Telescope* AR-13884: \$74,476 2015–2018  
PI, *Hubble Space Telescope* AR-13879: \$54,155 2014–2017  
PI, *Hubble Space Telescope* GO-12976: \$1,504 2012–2015  
PI, *Hubble Space Telescope* GO-12268: \$54,960 2011–2014  
Co-I, *Hubble Space Telescope* GO-15951 (PI Hansen): \$13,805 2020–2023  
Co-I, *Hubble Space Telescope* GO-14151 (PI Frebel): \$53,547 2016–2019  
Co-I, *Hubble Space Telescope* AR-13246 (PI Frebel): \$27,549 2013–2016  
Co-I, *Hubble Space Telescope* GO-12554 (PI Beers): \$1,488 2012–2015

## Other

PI, AAS travel grant: \$930	2009
PI, IAU travel grants (3): \$2,500	2008–2009
PI, Professional development awards, University of Texas (3): \$1,675	2007–2009
PI, <i>Sigma Xi</i> Grant-in-Aid of Research Award: \$4,875	2006

## Honors and Awards

Barbara McClintock Fellow, Carnegie Observatories	2012
Outstanding Dissertation Award, Univ. of Texas Graduate School/University Co-op	2011
NSF Graduate Research Fellowship—Honorable Mention	2005, 2006, 2007
Hollis and Grete Johnson Award for Excellence in Student Research, Dept. of Astronomy, Indiana Univ.	2005
Herman B Wells Scholar, Indiana University	2001–2005

## Invited Talks

### Conferences and Meetings

[14] 15th International Symp. on the Origin of Matter and Evolution of Galaxies, Kyoto, Japan	07/02/2019
[13] FRIB and the GW170817 Kilonova, East Lansing, MI	07/17/2018
[12] Stellar Abundances in Dwarf Galaxies, Denver, CO	06/05/2018
[11] A Celebration of CEMP and Gala of GALAH, Melbourne, Australia	11/14/2017
[10] First Stars V, Heidelberg, Germany	08/01/2016
[9] Connecting FRIB with the Cosmos, East Lansing, MI	06/01/2016
[8] The UV-Visible Path Forward: the Future of UV/Visible Space Astrophysics	06/25/2015
[7] JINA-CEE Frontiers in Nuclear Astrophysics, East Lansing, MI	03/24/2015
[6] Status and Challenges of r-process Nucleosynthesis, INT, Seattle, WA	07/30/2014
[5] Torino Workshop on Nucleosynthesis in AGB Stars, Bad Honnef, Germany	07/18/2014
[4] Nuclear Astrophysics Workshop, NSCL, East Lansing, MI	08/22/2013
[3] National Academy of Science: Korean-American Kavli Frontiers Symposium, Irvine, CA	08/12/2013
[2] American Physical Society / Division of Nuclear Physics, Newport Beach, CA	10/27/2012
[1] Russbach Workshop on Nuclear Astrophysics, Russbach, Austria	03/12/2012

### Astronomy/Astrophysics Colloquia

[21] University of Manitoba	12/13/2022
[20] DAO/Herzberg Astronomy and Astrophysics Research Center [virtual]	11/24/2020
[19] University of Florida [virtual]	05/14/2020
[18] MIT	03/12/2019
[17] Michigan State University (JINA-CEE)	09/10/2018
[16] University of Victoria	05/02/2018
[15] Space Telescope Science Institute and Johns Hopkins University	10/25/2017
[14] Case Western Reserve University	03/01/2017
[13] University of Minnesota	02/17/2017
[12] Purdue University	01/27/2017
[11] University of Michigan	01/12/2017
[10] The Ohio State University (CCAPP)	05/24/2016
[9] University of Washington	05/19/2016

[8] Heidelberg (ZAH, MPIA, MPIK, HITS)	05/03/2016
[7] University of Notre Dame	09/01/2015
[6] University of Illinois	04/21/2015
[5] Indiana University	11/18/2014
[4] UC Irvine	03/05/2013
[3] UC Santa Cruz	11/21/2012
[2] University of Utah	11/09/2012
[1] Texas A&M University	03/25/2009

### **Physics Colloquia**

[7] North Carolina State University	01/23/2023
[6] TRIUMF	05/03/2018
[5] University of Wisconsin	04/20/2018
[4] University of Notre Dame	02/01/2017
[3] Central Michigan University	09/10/2015
[2] University of Wisconsin	09/04/2012
[1] University of Oklahoma	12/03/2009

### **Contributed Talks**

[39] CeNAM (Center for Nuclear Astrophysics across Messengers) Frontiers, East Lansing, MI	05/23/2023
[38] APS April meeting, Minneapolis, MN	04/18/2023
[37] 241st AAS meeting, Seattle, WA	01/12/2023
[36] RR Lyrae Stars, Galactic Structure, and Chemistry, Pasadena, CA	06/11/2022
[35] JINA-CEE Frontiers in Nuclear Astrophysics, South Bend, IN	05/26/2022
[34] Science with UV-Efficient Ground-Based Spectrographs [virtual]	02/03/2021
[33] The Local Group: Assembly and Evolution, STScI [virtual]	09/01/2020
[32] 236th AAS Meeting [virtual]	06/02/2020
[31] FRIB Proposal Writing Workshop [virtual]	05/04/2020
[30] R-Process Alliance Workshop, Cambridge, MA	11/22/2019
[29] Small Galaxies—Cosmic Questions, Durham, United Kingdom	08/02/2019
[28] 233rd AAS Meeting, Seattle, WA	01/08/2019
[27] 231st AAS Meeting, Washington, DC	01/11/2018
[26] Forging Connections: From Nuclei to the Cosmic Web, East Lansing, MI	06/26/2017
[25] JINA-CEE Frontiers in Nuclear Astrophysics, Lansing, MI	02/09/2017
[24] Magellan Science Symposium, Washington, DC	12/08/2016
[23] JINA-CEE Frontiers in Nuclear Astrophysics, South Bend, IN	03/30/2016
[22] 225th AAS Meeting, Seattle, WA	01/05/2015
[21] 222nd AAS Meeting, Indianapolis, IN	06/06/2013
[20] Seminar, University of Michigan	12/03/2013
[19] 221st AAS Meeting, Long Beach, CA	01/08/2013
[18] Nuclei in the Cosmos XII, Cairns, Australia	08/06/2012
[17] NIC Workshop on r-process Nucleosynthesis, Cairns, Australia	08/04/2012
[16] Carnegie Science Day, Carnegie Observatories	04/13/2012
[15] Chemical Evolution of the Milky Way, Sesto, Italy	01/25/2012

[14] Carnegie Science Day, Carnegie Observatories	10/28/2011
[13] The Globular Cluster Galaxy Connection, UC Santa Cruz	07/13/2011
[12] Ph.D. defense, Department of Astronomy, University of Texas	06/04/2010
[11] 215th AAS Meeting, Dissertation summary talk, Washington, D.C.	01/04/2010
[10] Seminar, Carnegie Observatories	11/20/2009
[9] Astronomy tea talk, Caltech	11/16/2009
[8] Poster summary talk, The Frank N. Bash Symposium, University of Texas	10/19/2009
[7] Institute for Theory and Computation seminar, Harvard-Smithsonian CfA	09/29/2009
[6] Joint Institute for Nuclear Astrophysics seminar, Michigan State University	09/14/2009
[5] Second GMT Hi-Res Spectroscopy Workshop, University of Texas	01/17/2009
[4] Astronomy journal club presentation, UCLA	01/13/2009
[3] Seminar, Carnegie Observatories	04/11/2008
[2] The IXth Torino Workshop on AGB Stars, Perugia, Italy	10/25/2007
[1] Precision Spectroscopy in Astrophysics, Aveiro, Portugal	09/12/2006

## Teaching

### **North Carolina State University, Raleigh, North Carolina**

Physics 205, Physics for Engineers and Scientists I (3 cr.) *fall 2023*

### **University of Michigan, Ann Arbor, Michigan**

Astro 101, The Solar System and the Search for a New Earth (4 cr.) *winter 2019, fall 2022*

Astro 102, Stars, Galaxies, and the Universe (4 cr.) *winter 2020*

Astro 104, Alien Skies: A Tour through the Universe (3 cr.) *winter 2017*

Astro 127, Naked Eye Astronomy (1 cr.) *10 sections, fall 2014 to fall 2016*

Astro 399, Introduction to Research (independent study; 1–3 cr.) *various sections and years*

Stars and the Atomic Age *developed as part of NSF AAG 16-13536*

### **Pasadena City College, Pasadena, California**

New Horizons in Astronomy (extended learning curriculum) *summer 2012*

## Mentoring

### **Undergraduate students**

Sanil Mittal, University of Michigan '25 *2023–*

Lailyn Borum, University of Michigan '25 *2022–*

Audrey Lang, University of Michigan '21 *2020–*

Xiaowei Ou, University of Michigan '20 *2016–2020*

David Khatami, Pomona College '16 *summer 2013*

## Professional Service

**Chair**, Stars and stellar populations science working group, European Extremely Large Telescope (ELT)

ArmazoNes high Dispersion Echelle Spectrograph (ANDES) *2022–*

**Member**, Hubble Space Telescope Users' Committee *2022–*

**Science Verification Team**, Gemini High Resolution Optical Spectrograph (GHOST) *2020–*

**External reviewer**, CFHT French Time Allocation Committee, China Telescope Access Program, FONDECYT, NIST, Austrian Science Fund's Erwin Schrödinger Fellowship, and the

Canadian Time Allocation Committee; 1–2 reviews per year	2014–
<b>Peer-review referee</b> , AJ, ApJ, A&A, MNRAS, PASP, PRL, Science; 4–5 manuscripts per year	2009–
<b>Panel reviewer</b> , NOIRLab Survey Telescope Allocation Committee	2023
<b>Panel reviewer</b> , NASA Astrophysics Data Analysis Program	2021
<b>Science Advisory Group</b> , Integral Field Units for Magellan (IFU-M)	2017–2021
<b>Collaborator</b> , Cosmic Evolution Through UV Surveys (CETUS) a proposed probe-class mission	2016–2020
<b>Member</b> , science working group to advise the science and technology definition team for the UV Spectrograph on NASA’s Habitable Exoplanet Observatory (HabEx) mission concept	2016–2020
<b>Member</b> , Magellan-2020 Strategic Planning Committee	2020
<b>Panel reviewer</b> , NSF Astronomy & Astrophysics Research Grants Program	2019
<b>Topical group convener</b> , US ELT Key Science Program effort	2018–2019
<b>Member</b> , UV-visible science interest group, Cosmic Origins Program Analysis Group	2015
<b>Judge</b> , Chambliss student poster award competition, 221st, 222nd, 225th, 231st, 232nd, and 233rd AAS Meetings	2013–2019
<b>Panel member or mid-cycle reviewer</b> , Hubble Space Telescope Time Allocation Committee	2011, 2014, 2017, 2019, 2022
<b>Science advisor</b> , Michigan/Magellan Fiber System (M2FS)	2011–2013
<b>Member</b> , Science Working Group for G-Clef, the high-resolution optical spectrograph for the Giant Magellan Telescope	2010
<b>Member</b> , Science Working Group for Q-Spec, a proposed high-resolution optical spectrograph for the Giant Magellan Telescope	2009

## **Department Service**

<b>Undergraduate academic advisor</b> , Dept. of Astronomy, U. Michigan	2021–2023
<b>Member</b> , Extremely Large Telescope Committee, Dept. of Astronomy, U. Michigan	2021–2023
<b>Co-chair</b> , Colloquium Committee, Dept. of Astronomy, U. Michigan	2019–2020
<b>Member</b> , Magellan Training/Use Committee, Dept. of Astronomy, U. Michigan	2018–2019
<b>Co-chair, member</b> , Diversity, Equity, & Inclusion Committee, Dept. Astronomy, U. Michigan	2017–2018; 2020
<b>Member</b> , NOEMA Telescope Allocation Committee (U. Michigan internal)	2018
<b>Member</b> , Magellan Telescope Allocation Committee (U. Michigan internal)	2014–2015; 2022–2023
<b>Coordinator</b> , Carnegie Observatories lunch seminar	2011–2013
<b>Graduate student representative</b> , Dept. of Astronomy, U. Texas	2007–2008

## **Science Communication**

<b>Organizer/speaker</b> , virtual activities for children and adults at public libraries across Michigan and Indiana during the COVID-19 pandemic	2020–2021
<b>Speaker</b> , Carnegie Observatories Public Lecture Series, “Stars and the Atomic Age”	2013
<b>Judge</b> , Los Angeles County Science Fair	2013
<b>Contributing author</b> , “Ask an Astronomer” column in <i>Astronomy Magazine</i>	2009–2014
<b>Host/speaker/volunteer</b> , astronomy outreach events including star parties, University open houses, K–12 school groups, library groups, scout groups, Rotary, and amateur astronomy societies	2005–
<b>Intern</b> , Gheens Science Hall and Rauch Planetarium, Louisville, Kentucky: led planetarium shows and discussions for the public and school groups	summer 2002, 2003, 2005

## **Professional Affiliations**

American Astronomical Society  
American Physical Society  
International Astronomical Union

## **Press Releases and Media Coverage**

“Gemini’s GHOST Captures Exquisite First Light Observations of a Bright, Chemically Rich Star”: NSF’s NOIRLab press release featuring a star my team discovered	<i>07/2022</i>
“Astronomers find ‘gold standard’ star in Milky Way”: University of Michigan	<i>05/2022</i>
“Star fossil: a rare and ancient star over 10 billion years old”: São Paulo Research Foundation	<i>05/2021</i>
“Explosions of universe’s first stars spewed powerful jets”: MIT	<i>05/2019</i>
“Massive hyper-runaway star ejected from the Milky Way Disk”: University of Michigan	<i>03/2019</i>
“Using the Gaia Satellite to study the environment of the r-process”: JINA-CEE Highlight	<i>10/2018</i>
“Relics of the Milky Way’s first generation of stars”: University of Michigan	<i>06/2016</i>
“A rare and prolific r-process event preserved in an ancient dwarf galaxy”: JINA-CEE Highlight	<i>05/2016</i>
“New evidence for the i-process in the early Galaxy”: JINA-CEE Highlight	<i>04/2016</i>
“Our Cosmic Selves”: New York Times commentary by R. Jayawardhana on my team’s detection of phosphorus, among other things	<i>04/2015</i>
“Candidate Solar Sibling Found”: McDonald Observatory	<i>05/2014</i>
“Old Star, New Trick”: Carnegie Institution for Science	<i>04/2012</i>
“Astronomers Find Rare Element in Ancient Stars”: MIT	<i>02/2012</i>

## **Refereed Publications**

- Total citations: 4,334 (2,134 as first author, 2,200 as Nth author, as of 2023 August 24)
- *h*-index: 40
- Publications are linked to the NASA ADS whenever possible.
- Follow [this link](#) for a full listing of my publications at the NASA ADS.
- ★ marks publications led by a student under my supervision.

[102] *The Kinematics, Metallicities, and Orbits of Six Recently Discovered Galactic Star Clusters with Magellan/M2FS Spectroscopy*

Pace, A.B., Koposov, S.E., Walker, M.G., Caldwell, N., Mateo, M., Olszewski, E.W., **Roederer, I.U.**, Bailey, J.I., Belokurov, V., Kuehn, K., Li, T.S., Zucker, D.

**Monthly Notices of the Royal Astronomical Society**, submitted (arXiv:2304.06904)

[101] *Observational signatures of transuranic fission fragments in stars*

**Roederer, I.U.**, Vassh, N., Holmbeck, E.M., Mumpower, M.R., Surman, R., Cowan, J.J., Beers, T.C., Ezzeddine, R., Frebel, A., Hansen, T.T., Placco, V.M., Sakari, C.M.

**Science**, submitted

[100] *Discovery of an Ultra Lithium-rich Metal-poor Red Giant Star*

Kowkabany, J., Ezzeddine, R., Charbonnel, C., **Roederer, I.U.**, Li, Y., Hackshaw, Z., Beers, T.C., Frebel, A., Hansen, T.T., Holmbeck, E., Placco, V.M., Sakari, C.M.

**Astrophysical Journal**, submitted (arXiv:2209.02184)

[99] *Magellan/M2FS and MMT/Hectochelle Spectroscopy of Dwarf Galaxies and Faint Star Clusters within the Galactic Halo*

Walker, M.G., Caldwell, N., Mateo, M., Olszewski, E.W., Pace, A.B., Bailey, J.I., Koposov, S.E., **Roederer, I.U.**

**Astrophysical Journal Supplement Series**, in press

[98] *Abundance Analysis of Stars at Large Radius in the Sextans Dwarf Spheroidal Galaxy*

**Roederer, I.U.**, Pace, A.B., Placco, V.M., Caldwell, N., Koposov, S.E., Mateo, M., Olszewski, E.W., Walker, M.G.

**Astrophysical Journal**, 954, 55 (2023)

[97] *Iron-Peak Element Abundances in Warm Very Metal-Poor Stars*

Snedden, C., Boesgaard, A.M., Cowan, J.J., **Roederer, I.U.**, Den Hartog, E.A., Lawler, J.E.

**Astrophysical Journal**, 953, 31 (2023)

[96] *HD 222925: a New Opportunity to Explore the Astrophysical and Nuclear Conditions of *r*-process Sites*

Holmbeck, E.M., Surman, R., **Roederer, I.U.**, McLaughlin, G.C., Frebel, A.

**Astrophysical Journal**, 951, 30 (2023)

- [95] *Uranium Abundances and Ages of R-process Enhanced Stars with Novel U II Lines*  
 Shah, S.P., Ezzeddine, R., Ji, A.P., Hansen, T., Catelan, M., **Roederer, I.U.**, Hackshaw, Z., Holmbeck, E.M.,  
 Beers, T.C., Surman, R.  
**Astrophysical Journal**, 948, 122 (2023)
- [94] *Finding r-II sibling stars in the Milky Way with the Greedy Optimistic Clustering algorithm*  
 Hattori, K., Okuno, A., **Roederer, I.U.**  
**Astrophysical Journal**, 946, 48 (2023)
- [93] *Atomic Transition Probabilities for Transitions of Si I and Si II and the Silicon Abundances of Several Very Metal-Poor Stars*  
 Den Hartog, E.A., Lawler, J.E., Sneden, C., **Roederer, I.U.**, Cowan, J.J.  
**Astrophysical Journal Supplement Series**, 265, 42 (2023)
- [92] *Metal Mixing in the R-Process Enhanced Ultra-Faint Dwarf Galaxy Reticulum II*  
 Ji, A.P., Simon, J.D., **Roederer, I.U.**, Magg, E., Frebel, A., Johnson, C.I., Klessen, R.S., Magg, M., Cescutti, G.,  
 Mateo, M., Bergemann, M., Bailey, J.I. III.  
**Astrophysical Journal**, 165, 100 (2023)
- [91] *The R-Process Alliance: Chemo-Dynamically Tagged Groups II. An Extended Sample of Halo r-Process-Enhanced Stars*  
 Shank, D., Beers, T.C., Placco, V.M., Guidin, D., Catapano, T., Holmbeck, E.M., Ezzeddine, R., **Roederer, I.U.**,  
 Sakari, C.M., Frebel, A., Hansen, T.T.  
**Astrophysical Journal**, 943, 23 (2023)
- [90] *Horizons: nuclear astrophysics in the 2020s and Beyond*  
 Schatz, H., Becerril Reyes, A.D., Best, A., et al. (165 authors, including **Roederer, I.U.**)  
**Journal of Physics G: Nuclear and Particle Physics**, 49, 110502 (2022)
- [89] *The chemical abundance pattern of the extremely metal-poor thin disk star 2MASS J1808–5104 and its origins*  
 Mardini, M.K., Frebel, A., Ezzeddine, R., Chiti, A., Meiron, Y., Ji, A.P., Placco, V.M., **Roederer, I.U.**, Meléndez,  
 J.  
**Monthly Notices of the Royal Astronomical Society**, 517, 3993 (2022)
- [88] *ANDES, the high resolution spectrograph for the ELT: science case, baseline design and path to construction*  
 Marconi, A., et al. (200+ authors, including **Roederer, I.U.**)  
**Proceedings of the Society of Photo-Optical Instrumentation Engineers**, 12184, 1218424 (2022)



- [87] *The complex stellar system M22: confirming abundance variations with high precision differential measurements*  
McKenzie, M., Yong, D., Marino, A.F., Monty, S., Wang, E., Karakas, A.I., Milone, A., Legnardi, M.V., **Roederer, I.U.**, Martell, S., Horta, D.  
**Monthly Notices of the Royal Astronomical Society**, 516, 3515 (2022)
- [86] *The R-Process Alliance: Abundance Universality among Some Elements at and between the First and Second R-Process Peaks*  
**Roederer, I.U.**, Cowan, J.J., Pignatari, M., Beers, T.C., Den Hartog, E.A., Ezzeddine, R., Frebel, A., Hansen, T.T., Holmbeck, E.M., Mumpower, M.R., Placco, V.M., Sakari, C.M., Surman, R., Vassh, N.  
**Astrophysical Journal**, 936, 84 (2022)
- [85] *The R-Process Alliance: A Nearly Complete R-Process Abundance Template Derived from Ultraviolet Spectroscopy of the R-Process-Enhanced Metal-Poor Star HD 222925*  
**Roederer, I.U.**, Lawler, J.E., Den Hartog, E.A., Placco, V.M., Surman, R., Beers, T.C., Ezzeddine, R., Frebel, A., Hansen, T.T., Hattori, K., Holmbeck, E.M., Sakari, C.M.  
**Astrophysical Journal Supplement Series**, 260, 27 (2022)
- [84] *Orbital Parameters and Binary Properties of 37 FGK stars in the Cores of Open Clusters NGC 2516 and NGC 2422*  
Lipartito, I., Bailey, J.I. III, Brandt, T.D., Mazin, B.A., Mateo, M., Spencer, M.E., **Roederer, I.U.**  
**Astronomical Journal**, 162, 285 (2021)
- [83] *Atomic Transition Probabilities of Neutral Calcium*  
Den Hartog, E.A., Lawler, J.E., Sneden, C., Cowan, J.J., **Roederer, I.U.**, Sobek, J.  
**Astrophysical Journal Supplement Series**, 255, 27 (2021)
- [82] *Probing the He II re-ionization ERA via Absorbing C IV Historical Yield (HIERACHY) I: Discovery of a Strong Outflow from a  $z \sim 4.7$  Quasar*  
Yu, X., Li, J.-T., Qu, Z., **Roederer, I.U.**, Bregman, J.N., Fan, X., Fang, T., Johnson, S.D., Wang, F., Yang, J.  
**Monthly Notices of the Royal Astronomical Society**, 505, 4444 (2021)
- [81] *Dynamical masses and mass-to-light ratios of resolved massive star clusters - II. Results for 26 star clusters in the Magellanic Clouds*  
Song, Y.-Y., Mateo, M., Bailey, J.I. III, Walker, M.G., **Roederer, I.U.**, Olszewski, E.W., Reiter, M., Kremin, A.  
**Monthly Notices of the Royal Astronomical Society**, 504, 4160 (2021)
- [80] *SPLUS J210428.01–004934.2: An Ultra Metal-Poor Star Identified from Narrow-Band Photometry*  
Placco, V.M., **Roederer, I.U.**, Lee, Y.S., Almeida-Fernandes, F., Herpich, F.R., Perottoni, H.D., Schoenell, W., Ribeiro, T., Kanaan, A.  
**Astrophysical Journal Letters**, 912, L32 (2021)

[79] *Detection of Al II in the Ultraviolet Spectra of Metal-Poor Stars: An Empirical LTE Test of NLTE Aluminum Abundance Calculations*

Roederer, I.U., Lawler, J.E.

**Astrophysical Journal**, 912, 119 (2021)

[78] *Improved Atomic Transition Probabilities for UV and Optical Lines of Hf II and Determination of the Hf Abundance in Two Metal-Poor Stars*

Den Hartog, E.A., Lawler, J.E., Roederer, I.U.

**Astrophysical Journal Supplement Series**, 254, 5 (2021)

[77] *R-Process-Rich Stellar Streams in the Milky Way*

Gull, M., Frebel, A., Hinojosa, K., Roederer, I.U., Ji, A.P., Brauer, K.

**Astrophysical Journal**, 912, 52 (2021)

[76] *The R-Process Alliance: Chemo-Dynamically Tagged Groups of Halo r-Process-Enhanced Stars Reveal a Shared Chemical-Evolution History*

Gudin, D., Shank, D., Beers, T.C., Yuan, Z., Limberg, G., Roederer, I.U., Placco, V., Holmbeck, E.M., Dietz, S., Rasmussen, K.C., Hansen, T.T., Sakari, C.M., Ezzeddine, R., Frebel, A.

**Astrophysical Journal**, 908, 79 (2021)

[75] *Detection of Pb II in the Ultraviolet Spectra of Three Metal-Poor Stars*

Roederer, I.U., Lawler, J.E., Holmbeck, E.M., Beers, T.C., Ezzeddine, R., Frebel, A., Hansen, T.T., Ivans, I.I., Karakas, A.I., Placco, V.M., Sakari, C.M.

**Astrophysical Journal Letters**, 902, L24 (2020)

★ [74] *Vanadium Abundance Derivations in 255 Metal-poor Stars*

Ou, X., Roederer, I.U., Sneden, C., Cowan, J.J., Lawler, J.E., Shtetman, S.A., Thompson, I.B.

**Astrophysical Journal**, 900, 106 (2020)

[73] *The R-Process Alliance: Fourth Data Release from the Search for R-Process-Enhanced Stars in the Galactic Halo*

Holmbeck, E.M., Hansen, T.T., Beers, T.C., Placco, V.M., Whitten, D.D., Rasmussen, K.C., Roederer, I.U., Ezzeddine, R., Sakari, C.M., Frebel, A., Drout, M.R., Simon, J.D., Thompson, I.B., Bland-Hawthorne, J., Gibson, B.K., Grebel, E.K., Kordopatis, G., Kunder, A., Meléndez, J., Navarro, J.F., Reid, W.A., Seabroke, G., Steinmetz, M., Watson, F., Wyse, R.F.G.

**Astrophysical Journal Supplement Series**, 249, 30 (2020)

[72] *The R-process Alliance: First Magellan/MIKE Release from the Southern Search for R-Process-enhanced Stars*

Ezzeddine, R., Rasmussen, K., Frebel, A., Chiti, A., Hinojisa, K., Placco, V.M., Beers, T.C., Hansen, T.T., Roederer, I.U., Sakari, C.M., Ji, A.P., Meléndez, J.

**Astrophysical Journal**, 898, 150 (2020)

- [71] *The R-process Alliance: J1521–3538, a Very Metal-Poor Extremely R-Process-Enhanced Star with  $[Eu/Fe] = +2.2$ , and the Class of r-III Stars*  
Cain, M., Frebel, A., Ji, A.P., Placco, V.M., Ezzeddine, R., **Roederer, I.U.**, Hattori, K., Beers, T.C., Meléndez, J., Hansen, T.T., Sakari, C.M.  
**Astrophysical Journal**, 898, 40 (2020)
- [70] *The R-Process Alliance: The Peculiar Chemical Abundance Pattern of RAVE J183013.5–455510*  
Placco, V.M., Santucci, R.M., Yuan, Z., Mardini, M.K., Holmbeck, E.M., Wang, X., Surman, R., Hansen, T.T., **Roederer, I.U.**, Beers, T.C., Choplin, A., Ji, A.P., Ezzeddine, R., Frebel, A., Sakari, C.M., Whitten, D.D., Zepeda, J.  
**Astrophysical Journal**, 897, 78 (2020)
- [69] *Hyperfine Structure Constants for Levels of  $^{175}\text{Lu}^+$*   
Den Hartog, E.A., Lawler, J.E., **Roederer, I.U.**  
**Astrophysical Journal Supplement Series**, 248, 10 (2020)
- [68] *Detailed Iron-Peak Element Abundances in Three Very Metal-Poor Stars*  
Cowan, J.J., Sneden, C., **Roederer, I.U.**, Lawler, J.E., Den Hartog, E.A., Sobek J.S., Boesgaard, A.M.  
**Astrophysical Journal**, 890, 119 (2020)
- [67] *Dynamical Masses and Mass-to-light Ratios of Resolved Massive Star Clusters. I. NGC 419 and NGC 1846*  
Song, Y.-Y., Mateo, M., Mackey, A.D., Olszewski, E.W., **Roederer, I.U.**, Walker, M.G., Bailey, J.I. III  
**Monthly Notices of the Royal Astronomical Society**, 490, 385 (2019)
- [66] *High Resolution Optical Spectroscopy of Stars in the Sylgr Stellar Stream*  
**Roederer, I.U.**, Gnedin, O.Y.  
**Astrophysical Journal**, 883, 84 (2019)
- [65] *r-process Nucleosynthesis: Connecting Rare-Isotope Beam Facilities with the Cosmos*  
Horowitz, C.J., Arcones, A., Côté, B., Dillmann, I., Nazarewicz, W., **Roederer, I.U.**, Schatz, H., Aprahamian, A., Atanasov, D., Bauswein, A., Bliss, J., Brodeur, M., Clark, J.A., Frebel, A., Foucart, F., Hansen, C.J., Just, O., Kankainen, A., McLaughlin, G.C., Kelly, J.M., Liddick, S.N., Lee, D.M., Lippuner, J., Martin, D., Mendoza-Temis, J., Metzger, B.D., Mumpower, M.R., Perdikakis, G., Pereira, J., O’Shea, B.W., Reifarth, R., Rogers, A.M., Siegel, D.M., Spyrou, A., Surman, R., Tang, X., Uesaka, T., Wang, M.  
**Journal of Physics G: Nuclear and Particle Physics**, 46, 083001 (2019)
- [64] *Evidence for an aspherical Population III supernova explosion inferred from the hyper metal-poor star HE 1327-2326*  
Ezzeddine, R., Frebel, A., **Roederer, I.U.**, Tominaga, N., Tumlinson, J., Ishigaki, M., Nomoto, K., Placco, V.M., Aoki, W.  
**Astrophysical Journal**, 876, 97 (2019)

- [63] *The R-Process Alliance: Discovery of a Low- $\alpha$ , R-Process-Enhanced Metal-Poor Star in the Galactic Halo*  
Sakari, C.M., **Roederer, I.U.**, Placco, V.M., Beers, T.C., Ezzeddine, R., Frebel, A., Hansen, T., Sneden, C.,  
Cowan, J.J., Wallerstein, G., Farrell, E.M., Venn, K.A., Matijević, G., Wyse, R.F.G., Bland-Hawthorn, J.,  
Chiappini, C., Freeman, K.C., Gibson, B.K., Grebel, E.K., Helmi, A., Kordopatis, G., Kunder, A., Navarro,  
J., Reid, W., Seabroke, G., Steinmetz, M., Watson, F.  
**Astrophysical Journal**, 874, 148 (2019)
- [62] *RELICS: Strong Lensing Analysis of MACS J0417.5–1154 and Predictions for Observing the Magnified  
High-Redshift Universe with JWST*  
Mahler, G., Sharon, K., Fox, C., Coe, D., Jauzac, M., Strait, V., Edge, A., Acebron, A., Andrade-Santos, F.,  
Avila, R.J., Bradač, M., Bradley, L.D., Carrasco, D., Cerny, C., Cibirka, N., Czakon, N.G., Dawson, W.A.,  
Frye, B.L., Hoag, A.T., Huang, K.-H., Johnson, T.L., Jones, C., Kikuchihara, S., Lam, D., Livermore, R.,  
Lovisari, L., Mainali, R., Ogaz, S., Ouchi, M., Paterno-Mahler, R., **Roederer, I.U.**, Ryan, R.E., Salmon, B.,  
Sendra-Server, I., Stark, D.P., Toft, S., Trenti, M., Umetsu, K., Vulcani, B., Zitrin, A.  
**Astrophysical Journal**, 873, 96 (2019)
- [61] *Origin of a massive hyper-runaway subgiant star LAMOST-HVS1—implication from Gaia and follow-up  
spectroscopy*  
Hattori, K., Valluri, M., Castro, N., **Roederer, I.U.**, Mahler, G., Khullar, G.  
**Astrophysical Journal**, 873, 116 (2019)
- [60] *The R-Process Alliance: Spectroscopic Follow-up of Low-metallicity Star Candidates from the Best &  
Brightest Survey*  
Placco, V.M., Santucci, R.M., Beers, T.C., Chanamé, J., Paz Sepúlveda, M., Coronado, J., Rossi, S., Lee, Y.S.,  
Starkenburg, K., Youakim, E., Barrientos, M., Ezzeddine, R., Frebel, A., Hansen, T.T., Holmbeck, E.M., Ji,  
A.P., Rasmussen, K.C., **Roederer, I.U.**, Sakari, C.M., Whitten, D.D.  
**Astrophysical Journal**, 870, 122 (2019)
- [59] *The R-Process Alliance: First Release from the Northern Search for R-Process Enhanced Metal-Poor Stars  
in the Galactic Halo*  
Sakari, C.M., Placco, V.M., Farrell, E.M., **Roederer, I.U.**, Wallerstein, G., Beers, T.C., Ezzeddine, R., Frebel,  
A., Hansen, T., Holmbeck, E.M., Sneden, C., Venn, K.A., Davis, C.E., Matijević, G., Wyse, R.F.G., Bland-  
Hawthorn, J., Chiappini, C., Freeman, K.C., Gibson, B.K., Grebel, E.K., Helmi, A., Kordopatis, G., Kunder,  
A., Navarro, J., Reid, W., Seabroke, G., Steinmetz, M., Watson, F.  
**Astrophysical Journal**, 868, 110 (2018)
- [58] *Old, Metal-Poor Extreme Velocity Stars in the Solar Neighborhood*  
Hattori, K., Valluri, M., Bell, E.F., **Roederer, I.U.**  
**Astrophysical Journal**, 866, 121 (2018)

- [57] *Kinematics of Highly R-Process-Enhanced Field Stars: Evidence for an Accretion Origin and Detection of Several Groups from Disrupted Satellites*  
**Roederer, I.U.**, Hattori, K., Valluri, M.  
**Astronomical Journal**, 156, 179 (2018)
- [56] *The R-Process Alliance: A Comprehensive Abundance Analysis of HD 222925, a Metal-Poor Star with an Extreme r-Process Enhancement of  $[Eu/H] = -0.14$*   
**Roederer, I.U.**, Sakari, C.M., Placco, V.M., Beers, T.C., Ezzeddine, R., Frebel, A., Hansen, T.T.  
**Astrophysical Journal**, 865, 129 (2018)
- [55] *The R-Process Alliance: Chemical Abundances for a Trio of R-Process-Enhanced Stars—One Strong, One Moderate, and One Mild*  
Cain, M., Frebel, A., Gull, M., Ji, A.P., Placco, V.M., Beers, T.C., Meléndez, J., Ezzeddine, R., Casey, A.R., Hansen, T.T., **Roederer, I.U.**, Sakari, C.  
**Astrophysical Journal**, 864, 43 (2018)
- [54] *Consistent Iron Abundances Derived from Neutral and Singly-Ionized Iron Lines in Ultraviolet and Optical Spectra of Six Warm Metal-Poor Stars*  
**Roederer, I.U.**, Sneden, C., Lawler, J.E., Cowan, J.J., Sobeck, J.S., Boesgaard, A.M.  
**Astrophysical Journal**, 860, 125 (2018)
- [53] *The R-Process Alliance: 2MASS J09544277+5246414, the Most Actinide-Enhanced R-II Star Known*  
Holmbeck, E.M., Beers, T.C., **Roederer, I.U.**, Placco, V.M., Hansen, T.T., Sakari, C.M., Sneden, C., Liu, C., Lee, Y.S., Cowan, J.J., Frebel, A.  
**Astrophysical Journal Letters**, 859, 2 (2018)
- [52] *Spectroscopic Validation of Low-Metallicity Stars from RAVE*  
Placco, V.M., Beers, T.C., Santucci, R.M., Chanamé, J., Paz Sepúlveda, M., Coronado, J., Points, S.D., Kaleida, K.C., Rossi, S., Kordopatis, G., Lee, Y.S., Matijević, G., Frebel, A., Hansen, T.T., Holmbeck, E.M., Rasmussen, K.C., **Roederer, I.U.**, Sakari, C.M., Whitten, D.D.  
**Astronomical Journal**, 155, 256 (2018)
- [51] *The R-Process Alliance: First Release from the Southern Search for R-Process Enhanced Stars in the Galactic Halo*  
Hansen, T.T., Holmbeck, E.M., Beers, T.C., Placco, V.M., **Roederer, I.U.**, Frebel, A., Sakari, C.M., Simon, J.D., Thompson, I.B.  
**Astronomical Journal**, 858, 92 (2018)
- [50] *A New Test of Copper and Zinc Abundances in Late-Type Stars Using Ultraviolet Cu II and Zn II Lines*  
**Roederer, I.U.**, Barklem, P.S.  
**Astrophysical Journal**, 857, 2 (2018)

- [49] *The r-process Pattern of a Bright, Highly R-process Enhanced Metal-Poor Halo Star at  $[Fe/H] \sim -2$*   
 Sakari, C.M., Placco, V.M., Hansen, T., Holmbeck, E.M., Beers, T.C., Frebel, A., **Roederer, I.U.**, Venn, K.A.,  
 Wallerstein, G., Davis, C.E., Farrell, E.M., Yong, D.  
**Astrophysical Journal Letters**, 854, L20 (2018)
- [48] *Neutron-capture element abundances in the planetary nebula NGC 5315 from deep optical and near-infrared spectrophotometry*  
 Madonna, S., García-Rojas, J., Sterling, N.C., Delgado-Inglada, G., Mesa-Delgado, A., Luridiana, V., **Roederer, I.U.**, Mashburn, A.L.  
**Monthly Notices of the Royal Astronomical Society**, 471, 1341 (2017)
- [47] *An Expanded Chemo-Dynamical Sample of Red Giants in the Bar of the Large Magellanic Cloud*  
 Song, Y., Mateo, M., Walker, M.G., **Roederer, I.U.**  
**Astronomical Journal**, 153, 261 (2017)
- [46] *Identification of Near-Infrared  $[Se III]$  and  $[Kr VI]$  Emission Lines in Planetary Nebulae*  
 Sterling, N.C., Madonna, S., Butler, K., García-Rojas, J., Mashburn, A.L., Morisset, C., Luridiana, V., **Roederer, I.U.**  
**Astrophysical Journal**, 840, 80 (2017)
- [45] *Finding the UV-Visible Path Forward: Proceedings of the Community Workshop To Plan the Future of UV/Visible Space Astrophysics*  
 Scowen, P.A., Tripp, T., Beasley, M., Ardila, D., Andersson, B.-G., Apellániz, J.-M., Barstow, M., Bianchi, L., Calzetti, D., Clammpin, M., Evans, C.J., France, K., García García, M., Gomez de Castro, A., Harris, W., Hartigan, P., Howk, C., Hutchings, J., Larruquert, J., Lillie, C.F., Matthews, G., McCandliss, S., Polidan, R., Perez, M.R., Rafelski, M., **Roederer, I.U.**, Sana, H., Sanders, W.T., Schiminovich, D., Thronson, H., Tumlinson, J., Vallergera, J., Wofford, A.  
**Publications of the Astronomical Society of the Pacific**, 129, 076001 (2017)
- [44] *The Origin of the Heaviest Metals in Most Ultra-Faint Dwarf Galaxies*  
**Roederer, I.U.**  
**Astrophysical Journal**, 835, 23 (2017)
- [43] *Observational Constraints on First-Star Nucleosynthesis. I. Evidence for Multiple Progenitors of CEMP-no Stars*  
 Yoon, J., Beers, T.C., Placco, V.M., Rasmussen, K.C., Carollo, D., He, S., Hansen, T.T., **Roederer, I.U.**, Zeanah, J.  
**Astrophysical Journal**, 833, 20 (2016)
- [42] *Neutron-Capture Element Abundances in Magellanic Cloud Planetary Nebulae*  
 Mashburn, A.L., Sterling, N.C., Madonna, S., Dinerstein, H.L., **Roederer, I.U.**, Geballe, T.R.  
**Astrophysical Journal Letters**, 831, L3 (2016)

- [41] *Detection of Phosphorus, Sulphur, and Zinc in the Carbon-Enhanced Metal-Poor Star BD+44° 493*  
**Roederer, I.U.**, Placco, V.M., Beers, T.C.  
**Astrophysical Journal Letters**, 824, L19 (2016)
- [40] *The Diverse Origins of Neutron-Capture Elements in the Metal-Poor Star HD 94028: Possible Detection of Products of *i*-process Nucleosynthesis*  
**Roederer, I.U.**, Karakas, A.I., Pignatari, M., Herwig, F.  
**Astrophysical Journal**, 821, 37 (2016)
- [39] *Detailed Chemical Abundances in the *r*-process-rich Ultra-Faint Dwarf Galaxy Reticulum 2*  
**Roederer, I.U.**, Mateo, M., Bailey, J.I. III, Song, Y., Bell, E.F., Crane, J.D., Loebman, S., Nidever, D.L., Olszewski, E.W., Shectman, S.A., Thompson, I.B., Valluri, M., Walker, M.G.  
**Astronomical Journal**, 151, 82 (2016)
- [38] *The detailed chemical composition of the terrestrial planet host Kepler-10*  
Liu, F., Yong, D., Asplund, M., Ramírez, I., Meléndez, J., Gustafsson, B., Howes, L.M., **Roederer, I.U.**, Lambert, D.L., Bensby, T.  
**Monthly Notices of the Royal Astronomical Society**, 456, 2636 (2016)
- [37] *Detailed chemical abundances in NGC 5824: another metal-poor globular cluster with internal heavy element abundance variations*  
**Roederer, I.U.**, Mateo, M., Bailey, J.I. III, Spencer, M., Crane, J.D., Shectman, S.A.  
**Monthly Notices of the Royal Astronomical Society**, 455, 2417 (2016)
- [36] *Hubble Space Telescope Near-Ultraviolet Spectroscopy of Bright CEMP-s Stars*  
Placco, V.M., Beers, T.C., Ivans, I.I., Filler, D., Imig, J.A., **Roederer, I.U.**, Abate, C., Hansen, T., Cowan, J.J., Frebel, A., Lawler, J.E., Schatz, H., Sneden, C., Sobeck, J.S., Aoki, W., Smith, V.V., Bolte, M.  
**Astrophysical Journal**, 812, 109 (2015)
- [35] *Detailed Abundances of 15 Stars in the Metal-Poor Globular Cluster NGC 4833*  
**Roederer, I.U.**, Thompson, I.B.  
**Monthly Notices of the Royal Astronomical Society**, 449, 3889 (2015)
- [34] *Detection of Neutral Phosphorus in the Near Ultra-violet Spectra of Late-Type Stars*  
**Roederer, I.U.**, Jacobson, H.R., Thanathibodee, T., Frebel, A., Toller, E.  
**Astrophysical Journal**, 797, 69 (2014)
- [33] *The Chemical Evolution of Phosphorus*  
Jacobson, H.R., Thanathibodee, T., Frebel, A., **Roederer, I.U.**, Cescutti, G., Matteucci, F.  
**Astrophysical Journal Letters**, 796, L24 (2014)

[32] *Nine New Metal-Poor Stars on the Subgiant and Red Horizontal Branches with High Levels of r-process Enhancement*

**Roederer, I.U.**, Cowan, J.J., Preston, G.W., Shtetman, S.A., Sneden, C., Thompson, I.B.  
**Monthly Notices of the Royal Astronomical Society**, 445, 2970 (2014)

[31] *New Detections of Arsenic, Selenium, and Other Heavy Elements in Two Metal-Poor Stars*

**Roederer, I.U.**, Schatz, H., Lawler, J.E., Beers, T.C., Cowan, J.J., Frebel, A., Ivans, I.I., Sneden, C., Sobeck, J.S.  
**Astrophysical Journal**, 791, 32 (2014)

[30] *Hubble Space Telescope Near-Ultraviolet Spectroscopy of the Bright CEMP-no Star BD+44° 493*

Placco, V.M., Beers, T.C., **Roederer, I.U.**, Cowan, J.J., Frebel, A., Filler, D., Ivans, I.I., Lawler, J.E., Schatz, H., Sneden, C., Sobeck, J.S., Aoki, W., Smith, V.V., Cunha, K.  
**Astrophysical Journal**, 790, 34 (2014)

[29] *Iron and neutron-capture element abundance variations in the globular cluster M2 (NGC 7089)*

Yong, D., **Roederer, I.U.**, Grundahl, F., Da Costa, G.S., Karakas, A.I., Norris, J.E., Aoki, W., Fishlock, C.K., Marino, A.F., Milone, A.P., Shingles, L.J.  
**Monthly Notices of the Royal Astronomical Society**, 441, 3396 (2014)

[28] *Elemental Abundances in Solar Sibling Candidates*

Ramírez, I., Bajkova, A.T., Bobylev, V.V., **Roederer, I.U.**, Lambert, D.L., Endl, M., Cochran, W.D., MacQueen, P.J., Wittenmyer, R.A.  
**Astrophysical Journal**, 787, 154 (2014)

[27] *A Search for Stars of Very Low Metal Abundance. VI. Detailed Abundances of 313 Metal-Poor Stars*

**Roederer, I.U.**, Preston, G.W., Thompson, I.B., Shtetman, S.A., Sneden, C., Burley, G.S., Kelson, D.D.  
**Astronomical Journal**, 147, 136 (2014)

[26] *Detailed Abundance Analysis of the Brightest Star in Segue 2, the Least Massive Galaxy*

**Roederer, I.U.**, Kirby, E.N.  
**Monthly Notices of the Royal Astronomical Society**, 440, 2665 (2014)

[25] *Neutron-Capture Nucleosynthesis in the First Stars*

**Roederer, I.U.**, Preston, G.W., Thompson, I.B., Shtetman, S.A., Sneden, C.  
**Astrophysical Journal**, 784, 158 (2014)

[24] *Chemical abundances in bright giants of the globular cluster M62 (NGC 6266)*

Yong, D., Alves Brito, A., Da Costa, G.S., Alonso-Garcia, J., Karakas, A.I., Pignatari, M., **Roederer, I.U.**, Aoki, W., Fishlock, C.K.  
**Monthly Notices of the Royal Astronomical Society**, 439, 2638 (2014)



[23] *High Precision Differential Abundance Measurements in Globular Clusters: Chemical Inhomogeneities in NGC 6752*

Yong, D., Meléndez, J., Grundahl, F., **Roederer, I.U.**, Norris, J.E., Milone, A.P., Marino, A.F., Coelho, P., McArthur, B.E., Lind, K., Collet, R., Asplund, M.

**Monthly Notices of the Royal Astronomical Society**, 434, 3542 (2013)

[22] *Are There Any Stars Lacking Neutron-Capture Elements? Evidence from Strontium and Barium*

**Roederer, I.U.**

**Astronomical Journal**, 145, 26 (2013)

[21] *New Hubble Space Telescope Observations of Heavy Elements in Four Metal-Poor Stars*

**Roederer, I.U.**, Lawler, J.E., Sobeck, J.S., Beers, T.C., Cowan, J.J., Frebel, A., Ivans, I.I., Schatz, H., Sneden, C., Thompson, I.B.

**Astrophysical Journal Supplement Series**, 203, 27 (2012)

[20] *M2FS: The Michigan/Magellan Fiber System*

Mateo, M., Bailey, J.I. III, Crane, J., Sheckman, S., Thompson, I., **Roederer, I.**, Bigelow, B., Gunnels, S.

**Proceedings of the Society of Photo-Optical Instrumentation Engineers**, 8446, 4Y (2012)

[19] *Germanium, Arsenic, and Selenium Abundances in Metal-Poor Stars*

**Roederer, I.U.**

**Astrophysical Journal**, 756, 36 (2012)

[18] *The double sub-giant branch of NGC 6656 (M22): a chemical characterization*

Marino, A.F., Milone, A.P., Sneden, C., Bergemann, M., Kraft, R.P., Wallerstein, G., Aparicio, A., Asplund, M., Bedin, R.L., Cassisi, S., Hilker, M., Lind, K., Momany, Y., Piotto, G., **Roederer, I.U.**, Stetson, P.B., Zoccali, M.

**Astronomy & Astrophysics**, 541, A15 (2012)

[17] *Detection of Elements at All Three r-process Peaks in the Metal-Poor Star HD 160617*

**Roederer, I.U.**, Lawler, J.E.

**Astrophysical Journal**, 750, 76 (2012)

[16] *RR-Lyrae-type pulsations from a 0.26-solar-mass star in a binary system*

Pietrzyński, G., Thompson, I.B., Gieren, W., Graczyk, D., Stępień, K., Bono, G., Prada Moroni, P.G., Pilecki, B., Udalski, A., Soszyński, I., Preston, G.W., Nardetto, N., McWilliam, A., **Roederer, I.U.**, Górski, M., Konorski, P., Storm, J.

**Nature**, 484, 75 (2012)

- [15] *Detection of the Second r-process Peak Element Tellurium in Metal-Poor Stars*  
**Roederer, I.U.**, Lawler, J.E., Cowan, J.J., Beers, T.C., Frebel, A., Ivans, I.I., Schatz, H., Sobeck, J.S., Sneden, C.  
**Astrophysical Journal Letters**, 747, L8 (2012)  
[This article was also featured in the “Research Highlights” section of Nature, 01 March 2012, 483, 8.]
- [14] *The r-process in Metal Poor Stars and Black Hole Formation*  
Boyd, R.N., Famiano, M.A., Meyer, B.S., Motizuki, Y., Kajino, T., **Roederer, I.U.**  
**Astrophysical Journal Letters**, 744, L14 (2012)
- [13] *The Chemical Abundances of Stars in the Halo (CASH) Project. II. A Sample of 16 Extremely Metal-poor Stars*  
Hollek, J.K., Frebel, A., **Roederer, I.U.**, Sneden, C., Shetrone, M., Beers, T.C., Kang, S., Thom, C.  
**Astrophysical Journal**, 742, 54 (2011)
- [12] *Characterizing the Heavy Elements in Globular Cluster M22 and an Empirical s-process Abundance Distribution Derived from the Two Stellar Groups*  
**Roederer, I.U.**, Marino, A.F., Sneden, C.  
**Astrophysical Journal**, 742, 37 (2011)
- [11] *Elemental Abundance Differences in the 16 Cygni Binary System: a Signature of Gas Giant Planet Formation?*  
Ramírez, I., Meléndez, J., Cornejo, D., **Roederer, I.U.**, Fish, J.R.  
**Astrophysical Journal**, 740, 76 (2011)
- [10] *Heavy Element Dispersion in the Metal-Poor Globular Cluster M92*  
**Roederer, I.U.**, Sneden, C.  
**Astronomical Journal**, 142, 22 (2011)
- [9] *Primordial r-process Dispersion in Metal-Poor Globular Clusters*  
**Roederer, I.U.**  
**Astrophysical Journal Letters**, 732, L17 (2011)
- [8] *The Ubiquity of the Rapid Neutron-Capture Process*  
**Roederer, I.U.**, Cowan, J.J., Karakas, A., Kratz, K.-L., Lugaro, M., Simmerer, J., Farouqi, K., Sneden, C.  
**Astrophysical Journal**, 724, 975 (2010)
- [7] *New Abundance Determinations of Cadmium, Lutetium, and Osmium in the r-process Enriched Star BD +17 3248*  
**Roederer, I.U.**, Sneden, C., Lawler, J.E., Cowan, J.J.  
**Astrophysical Journal Letters**, 714, L123 (2010)

[6] *Characterizing the Chemistry of the Milky Way Stellar Halo: Detailed Abundances of a Metal-Poor Stellar Stream*

**Roederer, I.U.**, Sneden, C., Thompson, I.B., Preston, G.W., Shectman, S.A.  
**Astrophysical Journal**, 711, 573 (2010)

[5] *The End of Nucleosynthesis: Production of Lead and Thorium in the Early Galaxy*

**Roederer, I.U.**, Kratz, K.-L., Frebel, A., Christlieb, N., Pfeiffer, B., Cowan, J.J., Sneden, C.  
**Astrophysical Journal**, 698, 1963 (2009)

[4] *Chemical Inhomogeneities in the Milky Way Stellar Halo*

**Roederer, I.U.**  
**Astronomical Journal**, 137, 272 (2009)

[3] *The Hobby-Eberly Telescope Chemical Abundances of Stars in the Halo (CASH) Project. I. The Lithium, r-, and s-Enhanced Metal-Poor Giant HKII 17435-00532*

**Roederer, I.U.**, Frebel, A., Shetrone, M.D., Allende Prieto, C., Rhee, J., Gallino, R., Bisterzo, S., Sneden, C., Beers, T.C., Cowan, J.J.  
**Astrophysical Journal**, 679, 1549 (2008)

[2] *Europium, Samarium, and Neodymium Isotopic Fractions in Metal-Poor Stars*

**Roederer, I.U.**, Lawler, J.E., Sneden, C., Cowan, J.J., Sobeck, J.S., Pilachowski, C.A.  
**Astrophysical Journal**, 675, 723 (2008)

[This article was also featured in the “Research Highlights” section of Nature, 20 March 2008, 452, 256.]

[1] *Flickering Red Giants in the Ursa Minor Dwarf Spheroidal Galaxy: Detection of Low-Amplitude Variability in Faint Red Giant Branch Stars on 10 Minute Timescales*

Mighell, K.J., **Roederer, I.U.**  
**Astrophysical Journal Letters**, 617, L41 (2004)

## **Research Notes (non-refereed)**

[2] *Linemake: An Atomic and Molecular Line List Generator*

Placco, V.M., Sneden, C., **Roederer, I.U.**, Lawler, J.E., Den Hartog, E.A., Hejazi, N., Maas, Z., Bernath, P.  
**Research Notes of the American Astronomical Society**, 5, 92 (2021)

[1] *Hubble Space Telescope Ultraviolet Spectroscopy of the Most Iron-Poor Star Known*

**Roederer, I.U.**  
**Research Notes of the American Astronomical Society**, 1, 56, (2017)

## **Major Mission Proposal Documents**

[1] *The Habitable Exoplanet Observatory (HabEx) Mission Concept Study Final Report*  
Gaudi, B.S., Seager, S., Mennesson, B., et al. (171 authors, including **Roederer, I.U.**)  
arXiv:2001.06683 (2020)

## Astro 2020 Decadal Whitepapers

[5] *The Potential of Ultraviolet Spectroscopy To Open New Frontiers To Study the First Stars*  
**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 51, 49 (2019)

[4] *The astrophysical r-process and the origin of the heaviest elements*

**Roederer, I.U.**, Beers, T.C., Ezzeddine, R., Frebel, A., Ji, A.P., Hansen, T.T., Placco, V.M., Sakari, C.M.  
**Bulletin of the American Astronomical Society**, 51, 136 (2019)

[3] *The First Stars and the Origin of the Elements*

**Roederer, I.U.**, Buzasi, D., Ji, A.P., Mace, G., Placco, V.M., Sobeck, J.S.  
**Bulletin of the American Astronomical Society**, 51, 163 (2019)

[2] *Local Dwarf Galaxy Archaeology*

Ji, A., Beaton, R., Chakrabarti, S., Duggan, G., Frebel, A., Geha, M., Hosek, M., Kirby, E., Li, T., **Roederer, I.**,  
Simon, J.

**Bulletin of the American Astronomical Society**, 51, 166 (2019)

[1] *Fundamental Stellar Physics throughout the Galaxy*

Buzasi, D., Bautista, M., Cummings, J., Mace, G., **Roederer, I.U.**, White, R.  
**Bulletin of the American Astronomical Society**, 51, 197 (2019)

## Meeting Abstracts (first author only)

[31] *Evidence for transuranic fission fragments in stars*

**Roederer, I.U.**, Vassh, N., Holmbeck, E., Mumpower, M., Surman, R., Cowan, J., Beers, T., Ezzeddine, R.,  
Frebel, A., Hansen, T., Placco, V., Sakari, C.

**Bulletin of the American Astronomical Society**, 241, 43502 (2023)

[30] *The R-Process Alliance: a new stellar template for the r-process abundance pattern*

**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 236, 20703 (2020)

[29] *Using Gaia DR2 to study the kinematics of highly r-process-enhanced stars*

**Roederer, I.U.**, Hattori, K., Valluri, M.

**Bulletin of the American Astronomical Society**, 233, 23104 (2019)

[28] *Heavy elements in ultra-faint dwarf galaxies*

**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 232, 21301 (2018)

[27] *Using r-process enhanced galaxies to estimate the neutron star merger rate at high redshift*

**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 231, 32607 (2018)

[26] *Using CETUS to study the first stars and first metals*

**Roederer, I.U.** and the CETUS Team

**Bulletin of the American Astronomical Society**, 231, 14014 (2018)

[25] *Observations of CEMP-i Stars*

**Roederer, I.U.**

A Celebration of CEMP and a Gala of GALAH, Melbourne, Australia (2017)

[24] *The environment of the r-process*

**Roederer, I.U.**

Forging Connections: from Nuclei to the Cosmic Web, East Lansing, MI (2017)

[23] *An update on the r-process one year after the discovery of the Reticulum II dwarf galaxy*

**Roederer, I.U.**

JINA-CEE Frontiers Meeting, Lansing, MI (2017)

[22] *Heavy Metals in Dwarf Galaxies*

**Roederer, I.U.**

Magellan Science Symposium, Washington, DC (2016)

[21] *Neutron-Capture Elements from the First Stars*

**Roederer, I.U.**

First Stars V, Heidelberg, Germany (2016)

[20] *Different Ways of Thinking about r-process Observations*

**Roederer, I.U.**

The r-process nucleosynthesis: connecting FRIB with the cosmos, East Lansing, MI (2016)

[19] *New Observational Constraints from Ancient Stars on the Origins of Heavy Elements*

**Roederer, I.U.**

JINA-CEE Frontiers Meeting, Notre Dame, IN (2016)

- [18] *New Constraints on the r-process Provided by New Observations of Rare Elements in Metal-Poor Stars*  
**Roederer, I.U.**  
JINA-CEE Frontiers Meeting, East Lansing, MI (2016)
- [17] *Ultraviolet Spectroscopy of Metal-Poor Stars: New Detections of Phosphorus, Germanium, Arsenic, Selenium, Cadmium, Tellurium, Lutetium, Osmium, Iridium, Platinum, Gold, and More!*  
**Roederer, I.U.**  
**Bulletin of the American Astronomical Society**, 225, 13301 (2015)
- [16] *New Observations of r-process Material in Metal-Poor Stars*  
**Roederer, I.U.**  
Workshop on the Status and Challenges of the r-process, INT, Seattle, WA (2014)
- [15] *New Observations of Elements with  $70 < A < 90$*   
**Roederer, I.U.**  
Torino Workshop on Nucleosynthesis in AGB Stars, Bad Honnef, Germany (2014)
- [14] *New Stellar Observations of Exotic Heavy Elements*  
**Roederer, I.U.**  
Nuclear Astrophysics Workshop at the NSCL, East Lansing, MI (2013)
- [13] *Synthesis of Heavy Elements in the Early Universe*  
**Roederer, I.U.**  
First Korean-American Kavli Frontiers of Science Symposium, Newport Beach, CA (2013)
- [12] *Neutron-Capture Nucleosynthesis in the First Stars*  
**Roederer, I.U.**  
**Bulletin of the American Astronomical Society**, 222, 40305 (2013)
- [11] *Are There Any Stars Lacking Neutron-Capture Elements?*  
**Roederer, I.U.**  
**Bulletin of the American Astronomical Society**, 221, 23202 (2013)
- [10] *New Observational Perspectives on r-process Nucleosynthesis*  
**Roederer, I.U.**  
APS Division of Nuclear Physics, Newport Beach, CA (2012)
- [9] *Abundances in r-process enriched metal-poor stars from new UV spectra*  
**Roederer, I.U.**  
9th Russbach Workshop on Nuclear Astrophysics, Russbach, AT (2012)

[8] *r-process Dispersion in Metal-Poor Globular Clusters*

**Roederer, I.U.**

The Chemical Evolution of the Milky Way, Sexten Center for Astrophysics, Sexten, Italy (2012)

[7] *Abundance Results from the Las Campanas Observatory and McDonald Observatory High-Resolution Metal-Poor Star Survey*

**Roederer, I.U.**, Preston, G., Shectman, S., Thompson, I., Sneden, C.

**Bulletin of the American Astronomical Society**, 217, 15403 (2011)

[6] *Characterizing the Chemistry of the Milky Way Stellar Halo*

**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 215, 31805 (2010)

[5] *Chemical Inhomogeneities in the Milky Way Stellar Halo(s)*

**Roederer, I.U.**

**Bulletin of the American Astronomical Society**, 213, 40810 (2009)

[4] *The Hobby-Eberly Telescope “Chemical Abundances Of Stars In The Halo” (CASH) Project. I. The Lithium-, r-, and s-enhanced Metal-poor Giant HK-II 17435–00532*

**Roederer, I.U.**, Frebel, A., Shetrone, M., Allende Prieto, C., Rhee, J., Gallino, R., Bisterzo, S., Sneden, C., Beers, T.C., Cowan, J.J.

**Bulletin of the American Astronomical Society**, 211, 13103 (2007)

[3] *Isotopic Abundances of Eu, Ba, and Sm in Metal-Poor Stars*

**Roederer, I.U.**, Sneden, C., Lawler, J.E., Sobeck, J.S., Pilachowski, C.A., Cowan, J.J.

**Bulletin of the American Astronomical Society**, 209, 16802 (2006)

[2] *Flickering Red Giants in the Ursa Minor Dwarf Spheroidal Galaxy: Detection of Low-Amplitude Variability in Faint Red Giant Branch Stars on Ten-Minute Timescales*

**Roederer, I.U.**, Mighell, K.J.

**Bulletin of the American Astronomical Society**, 205, 5418 (2004)

[1] *WIYN Open Cluster Study: UBVRI CCD Photometry of the Hyades-aged Open Cluster NGC 6633*

**Roederer, I.U.**, Deliyannis, C.P., Platais, I.

**Bulletin of the American Astronomical Society**, 203, 1408 (2003)

## Conference Proceedings

[11] *The Environment of the r-process: New Advances Enabled by the Study of the Orbits of r-process-enhanced Stars*

**Roederer, I.U.**

“Proceedings of the 15th International Symposium on Origin of Matter and Evolution of Galaxies”

**JPS Conf. Proc.**, 31, 011008 (2020)

[10] *The Environment of the R-Process*

**Roederer, I.U.**

“FRIB Theory Alliance Workshop: FRIB and the GW170817 Kilonova”

arXiv:1809.00703 (2018)

[9] *The s-process in globular cluster M22: hints for higher-mass polluters*

**Roederer, I.U.**

“XII International Symposium on Nuclei in the Cosmos”

**Proc. of Science**, 146, 021 (2012)

[8] *A Range of Neutron-Capture Abundance Ratios Produced by the r-Process*

**Roederer, I.U.**

“11th Symposium on Nuclei in the Cosmos”

**Proc. of Science**, 100, 281 (2010)

[7] *Detailed Abundances in a Metal-Poor Stellar Stream*

**Roederer, I.U.**, Sneden, C., Thompson, I.B., Preston, G.W., Sheckman, S.A.

“New Horizons in Astronomy: Frank N. Bash Symposium 2009”

**ASP Conf. Ser.**, 432, 239 (2010)

[6] *Detailed Abundances in a Metal-Poor Stellar Stream*

**Roederer, I.U.**, Sneden, C., Thompson, I.B., Preston, G.W., Sheckman, S.A.

“Chemical Abundances in the Universe: Connecting First Stars to Planets”

**Proc. IAU Symp.**, 265, 368 (2010)

[5] *Nucleosynthesis of Lead and Thorium in the Early Galaxy*

**Roederer, I.U.**, Kratz, K.-L., Frebel, A., Christlieb, N., Pfeiffer, B., Cowan, J.J., & Sneden, C.

“The Ages of Stars”

**Proc. IAU Symp.**, 258, 455 (2009)

[4] *Europium, Samarium, and Neodymium Isotopic Fractions in Metal-Poor Stars*

**Roederer, I.U.**, Lawler, J.E., Sneden, C., Cowan, J.J., Sobeck, J., Pilachowski, C.A.

“New Horizons in Astronomy: Frank N. Bash Symposium 2007”

**ASP Conf. Ser.**, 393, 263 (2008)



[3] *The Lithium-, r- and s-Enhanced Metal-Poor Giant HK-II 17435–00532*

**Roederer, I.U.**, Frebel, A., Shetrone, M., Allende Prieto, C., Rhee, J., Gallino, R., Bisterzo, S., Sneden, C., Beers, T.C., Cowan, J.J.

“IXth Torino Workshop on Evolution and Nucleosynthesis in AGB Stars and the IInd Perugia Workshop on Nuclear Astrophysics”

**AIP Conf. Proc.**, 1001, 169 (2008)

[2] *Europium, Samarium, and Neodymium Isotopic Fractions in Metal-Poor Stars*

**Roederer, I.U.**, Lawler, J.E., Sneden, C., Cowan, J.J., Sobeck, J., Pilachowski, C.A.

“First Stars III”

**AIP Conf. Proc.** 990, 172 (2008)

[1] *Isotopic Abundances of Eu, Ba, and Sm in Metal-Poor Stars*

**Roederer, I.U.**, Sneden, C., Lawler, J.E., Sobeck, J.S., Pilachowski, C.A., Cowan, J.J.

“Precision Spectroscopy in Astronomy”

ESO Astrophys. Symp. 55 (2008)