

Research Interests

Stellar Astrophysics, especially the Modules for Experiments for Stellar Astrophysics (MESA) project.
Explosions - emphasis on their progenitor evolution, nucleosynthesis, and multi-messenger signals.
Seismology, especially of observed variable white dwarfs.

Thermodynamics, Opacities, and Nuclear Physics - stars are gravitationally confined nuclear reactors.
Chemical evolution, growth of every isotope, atom, and molecule at every point in spacetime.

Astrobiology, production and delivery of bioessential elements to habitable systems.

Gamma-ray astronomy, particularly energetic photons from the decay of radionuclides.

Neutrino astronomy, across all masses metallicities, and especially from pre-supernova massive stars.

Community-driven software instruments - a primary modality for advancing 21st Century astronomy.

Astronomy Journals, especially evolution of the most cited articles and journals.

Education

1988 – 1992 UC Santa Cruz M.S. & Ph.D. in Astronomy & Astrophysics

1981 – 1984 UC Santa Barbara B.S. in Physics, with Honors

Recent Appointments

2022 – Deputy Editor-in-Chief, American Astronomical Society [Journals](#)

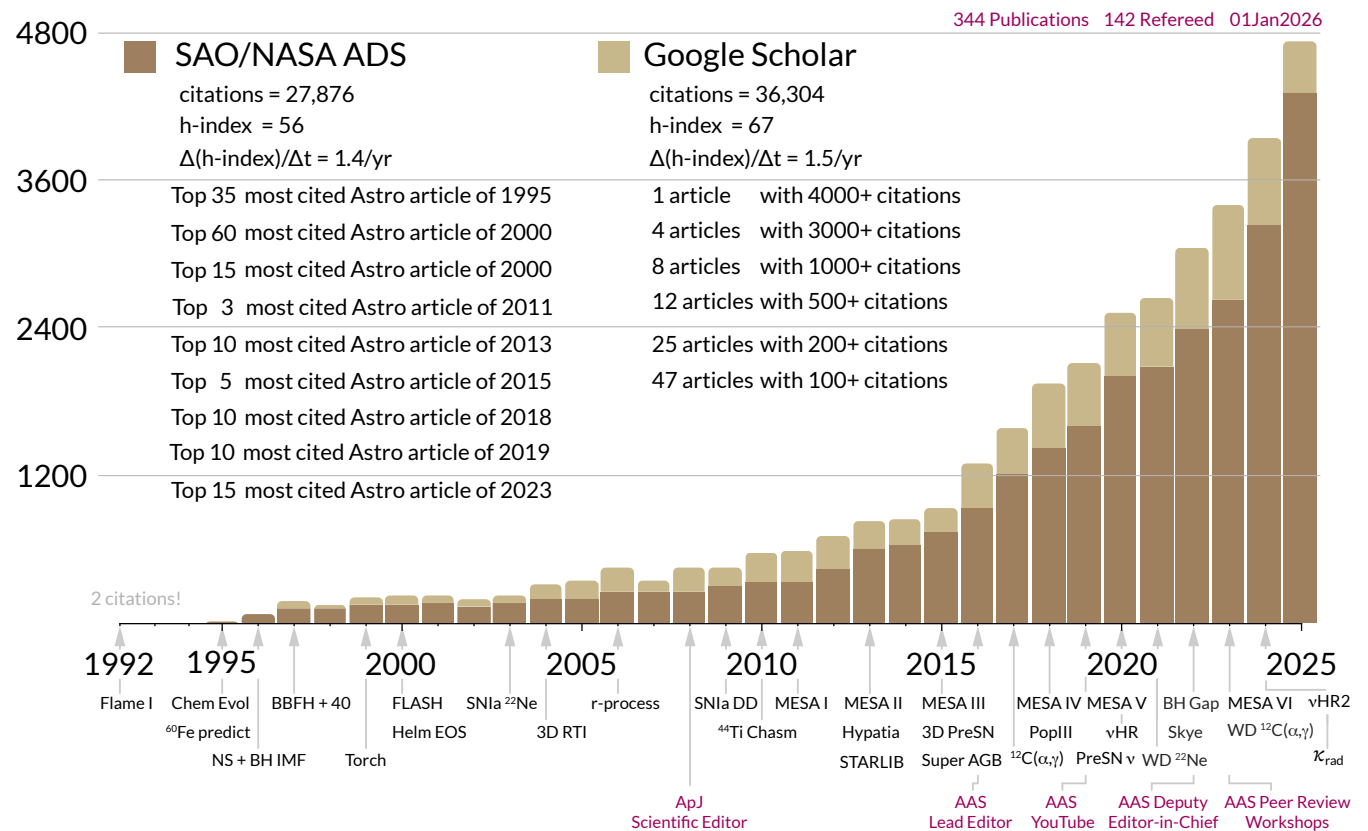
2019 – Senior Lead Editor, American Astronomical Society [Journals](#)

2016 – Lead Editor, American Astronomical Society [Journals](#)

2009 – Scientific Editor, American Astronomical Society [Journals](#)

2008 – 2025 Professor, Arizona State University, School of Earth and Space Exploration

Publication Summary



Research Funding

Total Awards Since 2008: \$26.5M, \$7.3M to Arizona State University as PI or Co-PI
Expenditures: FY25 \$422K, FY24 \$491K, FY23 \$483K, FY22 \$463K,

2022 – 2025	NSF	PI	\$422K, <i>Neutrino Emission From Stars</i>
2022 – 2025	NASA	PI	\$476K, <i>Probing The Interior Composition Of White Dwarfs</i>
2019 – 2024	NSF	Co-PI	\$2M, <i>AccelNet-WOU: International Research Network ...</i>
2017 – 2022	NSF	PI	\$2.3M, <i>Modules for Experiments ... (MESA)</i>
2014 – 2022	NSF	Co-PI	\$11.2M, <i>Physics Frontiers Center, JINA-CEE</i>

Leadership and Management Activities

2022 – Deputy Editor-in-Chief, American Astronomical Society Journals
2011 – 2015 Director, Advanced Computing Center, ASU
2009 – 2011 Associate Director of Operations, SESE, ASU

Awards, Fellowships, and Honors

2015 Simons Fellow in Theoretical Physics
2014 Fellow, American Physical Society
2013 Student Cluster Competition Prize, Supercomputing
2004 National Security Fellow, Los Alamos
2000 Gordon Bell Prize, Supercomputing

Successful Award Nominations

2021 Bill Paxton, Beatrice M. Tinsley Prize, American Astronomical Society
2020 Cecilia Lunardini, American Physical Society Fellow
2020 Brian Fields, American Physical Society Fellow
2018 Michael Wiescher, Laboratory Astrophysics Prize, American Astronomical Society
2017 Lars Bildsten, Dannie Heineman Prize for Astrophysics, American Astronomical Society
2016 Roland Diehl, American Physical Society Fellow
2012 David Arnett, Henry Norris Russell Lectureship, American Astronomical Society
2009 David Arnett, Hans A. Bethe Prize, American Physical Society

Invited Lectures and Colloquia

American Physical Society Nuclear Physics Division; Argonne National Laboratory;
Arizona State University; Aspen Center for Physics; California Institute of Technology;
Duke University; Flatiron Institute; Harvard University; Indiana University Bloomington;
Institute for Nuclear Theory; Kavli Institute for Theoretical Physics;
Lawrence Berkeley National Lab; Lawrence Livermore National Lab; Los Alamos National Lab;
Louisiana State University; Michigan State University; North Carolina State University;
Northwestern University; Notre Dame University; Ohio University; Physical Society of Japan;
Princeton University; SUNY - Stony Brook; Steward Observatory; Texas A&M Commerce;
University of Arizona; UC Berkeley; UC Santa Barbara; UC San Diego; University of Chicago;
University of Georgia; University of Innsbruck; University of Maryland at College Park;
UNC at Chapel Hill; University of Pittsburgh; Washington State University;
Wayne State University; Yale University

Recent National and International Service

- 2022 – Deputy Editor-in-Chief, American Astronomical Society [Journals](#)
- 2022 – Principal, American Astronomical Society [Peer-Review Workshops](#)
- 2019 – Principal Content Provider, American Astronomical Society [YouTube Channel](#)
- 2019 – Senior Lead Editor, American Astronomical Society [Journals](#)
- 2016 – Lead Editor, American Astronomical Society [Journals](#)
- 2011 – 2022 Director & Lecturer, MESA Summer School, UC Santa Barbara
- 2009 – Scientific Editor, American Astronomical Society [Journals](#)

Recent University Service

- 2022 – 2025 Colloquia Committee, SESE, ASU
- 2020 – 2022 Online Learning and Education Group, SESE, ASU

Summary of Undergraduate and Graduate Teaching

- 2014 – 2025 Energy in Everyday Life, ~3,000 learners/yr
- 2018 – 2023 ASU Universal Learner Program, ~6000 learners/yr
- 2015 – 2018 Largest college-credit eligible astronomy course in the world, ~10,000 learners/yr
- 2015 – 2015 First college-credit eligible MOOC (massive open online course) in the world

Graduate and Postdoctoral Sponsors

Stan Woosley, Graduate Thesis Advisor, UC Santa Cruz
 Jim Truran, Postdoc Advisor, University of Chicago
 Don Clayton, Postdoc Advisor, Clemson University
 Richard Lingenfelter, Postdoc Advisor, UC San Diego

Undergraduate Advisor to

Carl E. Fields Physics, 2016 Faculty, University of Arizona

Graduate Advisor to

Ebraheem Farag	2019–2024	ASU	Postdoc @ Yale Prize Fellowship
Morgan Chidester	2019–2023	ASU	Data Science @ Sorenson Communications
Wendy Hawley	2008–2012	ASU	Spatial Intelligence @ Vantor
Natalie Hinkel	2008–2012	ASU	Faculty @ LSU
Cody Raskin	2008–2011	ASU	Staff @ LLNL
Georgios Magkotsios	2007–2011	Notre Dame	Quantitative Finance Research

Postdoctoral Advisor to

Bill Wolf	2017-2019	Faculty @ University of Wisconsin - Eau Claire
Ilka Petermann	2015-2018	Research Fellow @ Gesellschaft für Anlagen-und Reaktorsicherheit
Rob Farmer	2014-2017	3D CAD Design @ AVEVA
Soma De	2010-2014	Senior Data Scientist @ Centene
Grant Newsham	2011-2013	Retired
Themis Athanassiadou	2009-2012	Senior Support Engineer @ Atlassian

Refereed Publications

- r142. [Inclusion of Isomers/Astromers in s-process Nucleosynthesis: The Pivotal Case of \$^{85}\text{Kr}\$](#) , Jaad Tannous, Wendell Misch, Matthew Mumpower, Bradley Meyer, F.X. Timmes, Aaron Couture, Chris Fryer, *Astrophysical Journal*, 986, 107, 2025
- r141. [The \$^{12}\text{C}\(\alpha,\gamma\)^{16}\text{O}\$ reaction, in the laboratory and in the stars](#), James de Boer, Andreas Best, Carlo Brune, Alejandro Chieffi, Chloë, Gianluca Imbriani, Weiping Liu, Yangping Shen, F.X. Timmes, Michael Wiescher, *The European Physical Journal A*, 61, 70, 2025
- r140. [Photons from Neutrinos: The Gamma-Ray Echo of a Supernova Neutrino Burst](#), Cecilia Lunardini, Joshua Loeffler, Mainak Mukhopadhyay, Ebraheem Farag, F.X. Timmes, *Astrophysical Journal*, 969, 149, 2024
- r139. [An Expanded Set of Los Alamos OPLIB Tables in MESA: Type-1 Rosseland-mean Opacities and Solar Models](#), Ebraheem Farag, Christopher J. Fontes, F.X. Timmes, Earl P. Bellinger, Joyce A. Guzik, Evan B. Bauer, Suzannah R. Wood, Katie Mussack, Peter Hakel, James Colgan, David P. Kilcrease, Manolo E. Sherrill, Tryston C. Raecke, and Morgan T. Chidester, *Astrophysical Journal*, 968, 56, 2024
- r138. Erratum: “On Stellar Evolution in a Neutrino Hertzsprung–Russell Diagram” (2020, *ApJ*, 893, 133) Ebraheem Farag, F.X. Timmes, Morgan Taylor, Kelly M. Patton, and R. Farmer, *Astrophysical Journal*, 965, 192, 2024
- r137. [Stellar Neutrino Emission across the Mass-Metallicity Plane](#), Ebraheem Farag, F.X. Timmes, Morgan T. Chidester, Samalka Anandagoda, Dieter H. Hartmann, *Astrophysical Journal Supplement*, 270, 5, 2024
- r136. [MESA-Web: A cloud resource for stellar evolution in astronomy curriculum](#), Carl E. Fields, Richard H.D. Townsend, A.L. Dotter, Michael Zingale, F.X. Timmes *Astronomy Education Journal*, 3, 1, 2023
- r135. [Seismic Signatures of the \$^{12}\text{C}\(\alpha,\gamma\)^{16}\text{O}\$ Reaction Rate in White Dwarf Models with Overshooting](#), Morgan T. Chidester, Ebraheem Farag, and F.X. Timmes *Astrophysical Journal*, 954, 51, 2023
- r134. [Author Correction: A highly magnified star at redshift 6.2](#), Brian Welch and 29 co-authors including F.X. Timmes, *Nature*, 620, E10, 2023
- r133. [Modules for Experiments in Stellar Astrophysics \(MESA\): Time-Dependent Convection, Energy Conservation, Automatic Differentiation, and Infrastructure](#), Adam Jermyn, Evan B. Bauer, Josiah Schwab, Robert Farmer, Warrick H. Ball, Earl P. Bellinger, Aaron Dotter, Meredith Joyce, Pablo Marchant, Joey S. G. Mombarg, William M. Wolf, Tin Long Sunny Wong, Giulia C. Cinquegrana, Eoin Farrell, Radek Smolec, Anne Thoul, Matteo Cantiello, Falk Herwig, Odette Toloza, Lars Bildsten, Richard H. D. Townsend, F.X. Timmes, *Astrophysical Journal Supplement*, 265, 15, 2023
- r132. [Horizons: nuclear astrophysics in the 2020s and beyond](#), Hendrik Schatz and 164 others including F.X. Timmes, *Journal of Physics G: Nuclear and Particle Physics*, 49, 110502, 2022

- r131. [JWST Imaging of Earendel, the Extremely Magnified Star at Redshift \$z = 6.2\$](#) , Brian Welch and 61 others including F.X. Timmes, *Astrophysical Journal Letters*, 940, 1, 2022
- r130. [Resolving the Peak of the Black Hole Mass Spectrum](#), Ebraheem Farag, Mathieu Renzo, Robert Farmer, Morgan T. Chidester, F.X. Timmes, *Astrophysical Journal*, 937, 112, 2022
- r129. [On Trapped Modes In Variable White Dwarfs As Probes Of The \$^{12}\text{C}\(\alpha, \gamma\)^{16}\text{O}\$ Reaction Rate](#) Morgan T. Chidester, Ebraheem Farag, F.X. Timmes
Astrophysical Journal, 935, 21, 2022
- r128. [Flash-X: A multiphysics simulation software instrument](#), Anshu Dubey and 30 others including F.X. Timmes, *SoftwareX*, 19, 101168, 2022
- r127. [Localised thermonuclear bursts from accreting magnetic white dwarfs](#), S. Scaringi, P.J. Groot, C. Knigge, A.J. Bird, E. Breedt, D.A.H. Buckley, Y. Cavecchi, N.D. Degenaar, D. de Martino, C. Done, M. Fratta, K. Hkiewicz, E. Koerding, J.-P. Lasota, C. Littlefield, C.F. Manara, M. O'Brien, P. Szkody, F.X. Timmes, *Nature*, 604, 447, 2022
- r126. [Stable nickel production in Type Ia supernovae: A smoking gun for the progenitor mass?](#), Stéphane Blondin, Eduardo Bravo, F.X. Timmes, Luc Dessart, D. John Hillier, *Astronomy & Astrophysics*, 660, 96, 2022
- r125. [A Highly Magnified Star at Redshift 6.2](#), Brian Welch, Dan Coe, Jose M. Diego and 26 co-authors including F.X. Timmes, *Nature*, 603, 815, 2022
- r124. [Observing intermediate-mass black holes and the upper stellar mass gap with LIGO and Virgo](#), Ajit Kumar Mehta, Alessandra Buonanno, M.C. Miller, Ebraheem Farag, R.J. DeBoer, M. Wiescher, and F.X. Timmes, *Astrophysical Journal*, 924, 39, 2022
- r123. [Skye: A Differentiable Equation of State](#), Adam S. Jermyn, Josiah Schwab, Evan Bauer, F.X. Timmes, and Alexander Y. Potekhin, *Astrophysical Journal*, 913, 72, 2021
- r122. [On the Impact Of \$^{22}\text{Ne}\$ On The Pulsation Periods Of Carbon-Oxygen White Dwarfs With Helium Dominated Atmospheres](#), Morgan T. Chidester, F.X. Timmes, Josiah Schwab, Richard H. D. Townsend, Ebraheem Farag, Anne Thoul, C. E. Fields, Evan B. Bauer, Michael H. Montgomery, *Astrophysical Journal*, 910, 24, 2021
- r121. [Presupernova Neutrinos: Directional Sensitivity and Prospects for Progenitor Identification](#), Mainak Mukhopadhyay, Cecilia Lunardini, F.X. Timmes, and Kai Zuber, *Astrophysical Journal*, 899, 153, 2020
- r120. [On Stellar Evolution In A Neutrino Hertzsprung-Russell Diagram](#), Ebraheem Farag, F.X. Timmes, Morgan Taylor, Kelly M. Patton, and R. Farmer, *Astrophysical Journal*, 893, 133, 2020
- r119. [Laminar Flame Speeds in Degenerate Oxygen-Neon Mixtures](#), Josiah Schwab, R. Farmer, and F.X. Timmes, *Astrophysical Journal*, 891, 5, 2020
- r118. [AAS Journals: Software and Data](#), F.X. Timmes and August Muench, *Astronomical Data Analysis Software and Systems XXVIII. ASP Conference Series*, Vol. 523, proceedings of a

- conference held (11-15 October 2018) at The Hotel at the University of Maryland, College Park, Maryland, USA. Edited by Peter J. Teuben, Marc W. Pound, Brian A. Thomas, and Elizabeth M. Warner. San Francisco: Astronomical Society of the Pacific, 2019, p.693
- r117. [Modules for Experiments in Stellar Astrophysics \(MESA\): Pulsating Variable Stars, Rotation, Convective Boundaries, and Energy Conservation](#), Bill Paxton, R. Smolec, Josiah Schwab, A. Gautschy, Lars Bildsten, Matteo Cantiello, Aaron Dotter, R. Farmer, Jared A. Goldberg, Adam S. Jermyn, S.M. Kanbur, Pablo Marchant, Anne Thoul, Richard H.D. Townsend, William M. Wolf, Michael Zhang, and F.X. Timmes, *ApJ Supplement*, 243, 10, 2019
- r116. [On the Structure, Magnetic Properties, and Infrared Spectra of Iron Pseudocarbynes in the Interstellar Medium](#), P. Tarakeshwar, P.R. Buseck and F.X. Timmes, *Astrophysical Journal*, 879, 2, 2019
- r115. [Quantifying How Density Gradients And Front Curvature Affect Carbon Detonation Strength During Type Ia Supernovae](#), Broxton J. Miles, Dean M. Townsley, Ken J. Shen, F. X. Timmes, and Kevin Moore, *Astrophysical Journal*, 871, 154, 2019
- r114. [The Impact Of White Dwarf Luminosity Profiles On Oscillation Frequencies](#), F.X. Timmes, Richard H. D. Townsend, Evan B. Bauer, Anne Thoul, C.E. Fields, and William M. Wolf, *Astrophysical Journal Letters*, 867, 30, 2018
- r113. [Data: Insights and Challenges in a Time of Abundance](#), F.X. Timmes and Leon Golub *Astrophysical Journal Supplement* 236, 1, 2018
- r112. [Modules for Experiments in Stellar Astrophysics \(MESA\): Convective Boundaries, Element Diffusion, and Massive Star Explosions](#), B. Paxton, J. Schwab, E. B. Bauer, L. Bildsten, S. Blinnikov, P. Duffell, R. Farmer, J. A. Goldberg, P. Marchant, E. Sorokina, A. Thoul, R. H. D. Townsend and F.X. Timmes, *Astrophysical Journal Supplement* 234, 34, 2018
- r111. [On the Observability of Individual Population III Stars and Their Stellar-mass Black Hole Accretion Disks through Cluster Caustic Transits](#), Rogier A. Windhorst, F.X. Timmes, J. Stuart B. Wyithe, Mehmet Alpaslan, Stephen K. Andrews, Daniel Coe, Jose M. Diego, Mark Dijkstra, and Simon P. Driver, Patrick L. Kelly, and Duho Kim, *Astrophysical Journal Supplement*, 234, 21, 2018.
- r110. [The Impact of Nuclear Reaction Rate Uncertainties On The Evolution of Core-Collapse Supernova Progenitors](#), C.E. Fields, F.X. Timmes, R. Farmer, I. Petermann, William M. Wolf, and S. M. Couch, *Astrophysical Journal Supplement*, 234, 19, 2018.
- r109. [The Neutron Capture Process in the He Shell in Core-Collapse Supernovae. Presolar Silicon Carbide Grains: a diagnostic for nuclear astrophysics](#), M. Pignatari, P. Hoppe, R. Trappitsch, C. Fryer, F.X. Timmes, F. Herwig, and R. Hirschi, *Geochimica and Cosmochimica Acta*, 221, 37, 2018
- r108. [Neutrinos from beta processes in a presupernova: probing the isotopic evolution of a massive star](#), Kelly M. Patton, Cecilia Lunardini, Robert J. Farmer, and F.X. Timmes, *Astrophysical Journal*, 851, 6, 2017

- r107. [The \$^{12}\text{C}\(\alpha,\gamma\)^{16}\text{O}\$ reaction and its implications for stellar helium burning](#), R. J. deBoer, J. Gorres, M. Wiescher, R.E. Azuma, A. Best, C.R. Brune, C.E. Fields, S. Jones, M. Pignatari, D. Sayre, K. Smith, F.X. Timmes, & E. Uberseder, *Review of Modern Physics*, 89, 035007, 2017
- r106. [Observational evidence for high neutronization in supernova remnants: implications for Type Ia supernova progenitors](#), Héctor Martínez-Rodríguez, Carles Badenes, Hiroya Yamaguchi, Eduardo Bravo, F.X. Timmes, M.J. Baxton, Dean M. Townsley, Anthony L. Piro, Hideyuki Mori, Brett Andrews, and S. Park *Astrophysical Journal*, 843, 35, 2017
- r105. [White paper on nuclear astrophysics and low energy nuclear physics Part 1: Nuclear astrophysics](#), A. Arcones and 32 others including F.X. Timmes, *Progress in Particle and Nuclear Physics*, 94, 1, 2017
- r104. [Constraining the Single-degenerate Channel of Type Ia Supernovae with Stable Iron-group Elements in SNR 3C 397](#), Pranav Dave, Rahul Kashyap, Robert Fisher, F.X. Timmes, Dean Townsley, *Astrophysical Journal*, 841, 58, 2017
- r103. [On Variations Of Pre-Supernova Model Properties](#), R. Farmer, C.E. Fields, I. Petermann, Luc Dessart, M. Cantiello, B. Paxton, & F.X. Timmes, *Astrophysical Journal Supplement*, 227, 22, 2016
- r102. [Turbulent Chemical Diffusion In Convectively Bounded Carbon Flames](#), Daniel Lecoanet, Josiah Schwab, Eliot Quataert, Lars Bildsten, F.X. Timmes, Keaton J. Burns, Geoffrey M. Vasil, Jeffrey S. Oishi, & Benjamin P. Brown, *Astrophysical Journal*, 832, 71, 2016
- r101. [Bayesian Estimation Of Thermonuclear Reaction Rates](#), C. Iliadis, K.A. Anderson, A. Coc, S. Starrfield, & F.X. Timmes, *Astrophysical Journal*, 831, 107, 2016
- r100. [NuGrid stellar data set. I. Stellar yields from H to Bi for stars with metallicities \$Z=0.02\$ and \$Z=0.01\$](#) , Pignatari, M., Herwig, F., Hirschi, R., Bennett, M., Rockefeller, G., Fryer, C., Timmes, F. X., Ritter, C., Heger, A., Jones, S., Battino, U., Ritter, C., Dotter, A., Trappitsch, R., Diehl, S., Frischknecht, U., Hungerford, A., Magkotsios, G., Travaglio, C. Young, P., *Astrophysical Journal*, 225, 24, 2016
- r99. [Nucleosynthetic Yields From Multidimensional Simulations of Type Ia Supernova: Reconstruction of Thickened Flames and Verification for Planar Detonations](#), D.M. Townsley, B.J. Miles, F.X. Timmes, A.C. Calder, and E.F. Brown, *Astrophysical Journal Supplement*, 225, 3, 2016
- r98. [On Measuring the Metallicity of Supernovae Type Ia Progenitors](#), B.J. Miles, D.R. van Rossum, D.M. Townsley, F.X. Timmes, A.P. Jackson, A.C. Calder, and E.F. Brown, *Astrophysical Journal*, 824, 59, 2016
- r97. [Properties of Carbon-Oxygen White Dwarfs From Monte Carlo Stellar Models](#) C.E. Fields, R. Farmer, I. Petermann, C. Iliadis, and F.X. Timmes, *Astrophysical Journal*, 823, 46, 2016
- r96. [Convective Properties of Rotating Two-Dimensional Core-Collapse Supernova Progenitors](#) E. Chatzopoulos, S.M. Couch, W.D. Arnett, and F.X. Timmes, *Astrophysical Journal*, 822, 61, 2016

- r95. [Erratum: Modules for Experiments in Stellar Astrophysics \(MESA\): Binaries, Pulsations, and Explosions](#), B. Paxton, P. Marchant, J. Schwab, E.B. Bauer, L. Bildsten, M. Cantiello, L. Dessart, R. Farmer, H. Hu, N. Langer, R.H.D. Townsend, D.M. Townsley, and F.X. Timmes, *Astrophysical Journal Supplement*, 223, 18, 2016
- r94. [Modules for Experiments in Stellar Astrophysics \(MESA\): Binaries, Pulsations, and Explosions](#), B. Paxton, P. Marchant, J. Schwab, E.B. Bauer, L. Bildsten, M. Cantiello, L. Dessart, R. Farmer, H. Hu, N. Langer, R.H.D. Townsend, D.M. Townsley, and F.X. Timmes, *Astrophysical Journal Supplement*, 220, 1, 2015
- r93. [Carbon-rich presolar grains from massive stars: Subsolar \$^{12}\text{C}/^{13}\text{C}\$ and \$^{14}\text{N}/^{15}\text{N}\$ ratios and the missing \$^{15}\text{N}\$](#) , M. Pignatati, E. Zinner, P. Hoppe, C. Jordan, B.K. Gibson, R. Trappitsch, F. Herwig, C.L. Fryer, R. Hirschi, and F.X. Timmes, *Astrophysical Journal Letters*, 808, 2, 2015
- r92. [The Three Dimensional Evolution to Core Collapse of a Massive Star](#), S.M. Couch, E. Chatzopoulos, W.D. Arnett, and F.X. Timmes, *Astrophysical Journal Letters*, 808, 1, 2015
- r91. [On Carbon Burning in Super Asymptotic Giant Branch Stars](#), R. Farmer, C.E. Fields, and F.X. Timmes, *Astrophysical Journal*, 807, 184, 2015
- r90. [Constraints On Explosive Silicon Burning In Core-Collapse Supernovae From Measured Ni/Fe Ratios](#), A. Jerkstrand, F.X. Timmes, G. Magkotsios, S.A. Sim, C. Fransson, J. Spyromilio, J. Sollerman, A. Heger, B. Müller, J. Sollerman, and S.J. Smartt, *Astrophysical Journal*, 807, 110, 2015
- r89. [Statistical Methods for Thermonuclear Reaction Rates and Nucleosynthesis Simulations](#), C. Iliadis, R. Longland, A. Coc, F.X. Timmes and A.E. Champagne, *Journal of Physics G: Nuclear and Particle Physics*, 42 034007, 2015
- r88. [Stellar Abundances in the Solar Neighborhood: The Hypatia Catalog](#), N.R. Hinkel, F.X. Timmes, P.A. Young, M.D. Pagano, M.C. Turnbull, *The Astronomical Journal*, 148, 54, 2014
- r87. [The Light Curve Of SN 1987A Revisited: Constraining Production Masses Of Radioactive Nuclides](#), I. Seitenzahl, F.X. Timmes, and G. Magkotsios, *Astrophysical Journal*, 792, 10, 2014
- r86. [On Silicon Group Elements Ejected by Supernovae Type Ia](#), S. De, F.X. Timmes, E.F. Brown, A.C. Calder, D.M. Townsley, T. Athanassiadou, D.A. Chamulak, W.P. Hawley, and D. Jack, *Astrophysical Journal*, 787, 149, 2014
- r85. [Evolution of FLASH, a multi-physics scientific simulation code for high-performance computing](#), A. Dubey and 19 co-authors including F.X. Timmes, *International Journal of High Performance Computing Applications*, 28, 2, 225, 2014
- r84. [Modules for Experiments in Stellar Astrophysics \(MESA\): Planets, Oscillations, Rotation, and Massive Stars](#), B. Paxton, M. Cantiello, P. Arras, L. Bildsten, E.F. Brown, A. Dotter, C. Mankovich, M.H. Montgomery, D. Stello, F.X. Timmes, and R. Townsend, *Astrophysical Journal Supplement*, 208, 4, 2013
- r83. [Advanced burning stages and fate of 8-10 \$M_{\odot}\$ stars](#), S. Jones, R. Hirschi, K. Nomoto, F.X. Timmes, T. Fischer, F. Herwig, and B. Paxton, *Astrophysical Journal*, 772, 150, 2013

- r82. [STARLIB: A Next-Generation Reaction-Rate Library for Nuclear Astrophysics](#), A.L. Sallaska, C. Iliadis, A.E. Champagne, S. Goriely, S. Starrfield, and F. X. Timmes, *Astrophysical Journal Supplement*, 207, 18, 2013
- r81. [Silicon carbide grains of type C provide evidence for the production of the unstable isotope \$^{32}\text{Si}\$ in supernovae](#), M. Pignatari, E. Zinner, M. G. Bertolli, R. Trappitsch, P. Hoppe, T. Rauscher, C. Fryer, F. Herwig, R. Hirschi, F. X. Timmes, and F.-K. Thielemann, *Astrophysical Journal Letters*, 771, L7, 2013
- r80. [Production of carbon-rich presolar grains from massive stars](#), M. Pignatari, M. Wiescher, F.X. Timmes, R.J. de Boer, F.-K. Thielemann, C. Fryer, A. Heger, F. Herwig, and R. Hirschi, *Astrophysical Journal Letters*, 767 L22, 2013
- r79. [The \$^{12}\text{C} + ^{12}\text{C}\$ reaction and the impact on nucleosynthesis in massive stars](#), M. Pignatari, R. Hirschi, M. Wiescher, R. Gallino, M. Bennett, M. Beard, C. Fryer, F. Herwig, G. Rockefeller, and F.X. Timmes, *Astrophysical Journal*, 762, 31, 2013
- r78. [On Simulating Type Ia Supernovae](#), A.C. Calder, B.K. Krueger, A.P. Jackson, D.M. Townsley, E.F. Brown and F.X. Timmes, *Journal of Physics*, 402, 012023, 2012
- r77. [Zero Impact Parameter White Dwarf Collisions in FLASH](#), W.P. Hawley, T. Athanassiadou, and F.X. Timmes, *Astrophysical Journal*, 759, 39, 2012
- r76. [Evaluating Systematic Dependencies of Type Ia Supernovae: The Influence of Central Density](#), B.K. Krueger, A.P. Jackson, A.C. Calder, D.M. Townsley, E.F. Brown, and F.X. Timmes, *Astrophysical Journal*, 757, 175, 2012
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- r74. [The effect of \$^{12}\text{C} + ^{12}\text{C}\$ rate uncertainties on the evolution and nucleosynthesis of massive stars](#), M. E. Bennett, R. Hirschi, M. Pignatari, S. Diehl, C. Fryer, F. Herwig, A. Hungerford, K. Nomoto, G. Rockefeller, F.X. Timmes, and M. Wiescher, *Monthly Notices of the Royal Astronomical Society*, 420, 3047, 2012
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- r72. [Freeze-out Yields of Radioactivities in Core-collapse Supernovae](#) G. Magkotsios, F.X. Timmes, and M. Wiescher, *Astrophysical Journal*, 741 78, 2011
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