Andre Sieverding

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Research Positions

- 01/09/2020 - present — Post-doctoral Researcher at Oak Ridge National Lab, USA
  - *Supervisor:* Prof. W.R. Hix
- 01/09/2018 – 31/08/2020 — Post-doctoral Researcher at the University of Minnesota, USA
  - *Supervisor:* Prof. Y.-Z. Qian
- 01/07/2018 – 31/08/2020 — Researcher at GSI Helmholtz Centre for Heavy Ion Research
  - *Supervisor:* Prof. G. Martínez-Pinedo

Education

- 07/2018 — **Ph.D.,** Technische Universität Darmstadt, Germany
  Thesis Title: *Neutrinos in Core-Collapse Supernova Explosions*
  Supervisor: Prof. Gabriel Martínez-Pinedo
- 08/2014 — **M.Sc. Physics**, Technische Universität Darmstadt, Germany
  Thesis Title: *The ν process in Supernovae*
- 08/2012 — **B.Sc. Physics**, Technische Universität Darmstadt, Germany
  Thesis Title: *Structure of White Dwarfs and Neutron Stars*

Awards and grants

- Minnesota Supercomputing Institute Research Exhibition Poster Prize 2019
- Giersch Excellence Award 2017 “for outstanding work or progress in the thesis project in the past year”.
- Giersch Excellence Award 2015 “for outstanding work or progress in the thesis project in the past year”.
- Helmholtz Graduate School for Hadron and Ion Research (HGS-HIRe) grant for research stay at Monash University, Australia, in 2016

Organizational, Committee and referee positions

09/2018 – 09/2020	Organizer and chair of the weekly Nuclear Theory Seminar at the University of Minnesota
12/2019 – 05/2020	Member of the Organizing Committee of the JINA Frontiers Conference (cancelled due to the pandemic)
08/2016 – 08/2017	Speaker for the Integrated Research Training Group within the Collaborative Research Centre SFB 1245 at TU Darmstadt
Since 2021	Referee for *Physical Review Letters*
Since 2018	Referee for *The Astrophysical Journal*

Publications:

First author publications

- **Sieverding, A.**; Rrapaj, E.; Guo, G.; Qian, Y.-Z.; *Impact of Dark Photon Emission on Massive Star Evolution and Pre-supernova Neutrino Signal*, The Astrophysical Journal, **912,** 13 (2021)
- **Sieverding, A.**; Müller, B.; Qian, Y.-Z.; *Nucleosynthesis of an 11.8 $M_\odot$ Supernova with 3D Simulation of the Inner Ejecta: Overall Yields and Implications for Short-lived Radionuclides in the Early Solar System*, The Astrophysical Journal, **904**,163 (2020)
- **Sieverding A.**; Langanke, K.; Martínez-Pinedo, G.; Bollig, R.; Janka, H.-T.; Heger, A.; *The ν-Process with Fully Time-dependent Supernova Neutrino Emission Spectra*, The Astrophysical Journal, **876**,151 (2019)
- **Sieverding A.**; Martínez-Pinedo, G.; Huther, L.; Langanke, K.; Heger, A.; *The ν Process in the Light of an Improved Understanding of Supernova Neutrino Spectra*, The Astrophysical Journal **865**,143 (2018)
- **Sieverding, A.**; *Neutrinos in Core-Collapse Supernova Nucleosynthesis*, Dissertation, TUprints http://tuprints.ulb.tu-darmstadt.de/7574/ (2018)

Other, peer-reviewed publications

- Gao, B.; Giraud, S.; Li, K. A.; **Sieverding, A**.; Zegers, R. G. T.; Tang, X.; Ash, J.; Ayyad-Limonge, Y.; Bazin, D.; Biswas, S.; Brown, B. A.; Chen, J.; DeNudt, M.; Farris, P.; Gabler, J. M.; Gade, A.; Ginter, T.; Grinder, M.; Heger, A.; Hultquist, C.; Hill, A. M.; Iwasaki, H.; Kwan, E.; Li, J.; Longfellow, B.; Maher, C.; Ndayisabye, F.; Noji, S.; Pereira, J.; Qi, C.; Rebenstock, J.; Revel, A.; Rhodes, D.; Sanchez, A.; Schmitt, J.; Sumithrarachchi, C.; Sun, B. H.; Weisshaar, D.*; New ^{59}Fe Stellar Decay Rate with Implications for the ^{60}Fe Radioactivity in Massive Stars*; Physical Review Letters, Volume **126**, Issue 15, article id.152701 (2021)
- Xiong, Z.; **Sieverding, A**.; Sen, M.; Qian, Y.-Z.*; Potential Impact of Fast Flavor Oscillations on Neutrino-driven Winds and Their Nucleosynthesis*; The Astrophysical Journal, **900**, 144 (2020)
- Reiter, M. P.; Ayet San Andrés, S.; Nikas, S.; Lippuner, J.; Andreoiu, C.; Babcock, C.; Barquest, B. R.; Bollig, J.; Brunner, T.; Dickel, T.; Dilling, J.; Dillmann, I.; Dunling, E.; Gwinner, G.; Graham, L.; Hornung, C.; Klawitter, R.; Kootte, B.; Kwiatkowski, A. A.; Lan, Y.; Lascar, D.; Leach, K. G.; Leistenschneider, E.; Martínez-Pinedo, G.; McKay, J. E.; Paul, S. F.; Plaß, W. R.; Roberts, L.; Schatz, H.; Scheidenberger, C.; **Sieverding, A**.; Steinbrügge, R.; Thompson, R.; Wieser, M. E.; Will, C.; Welch, D.; *Mass measurements of neutron-rich gallium isotopes refine production of nuclei of the first r -process abundance peak in neutron-star merger calculations;* Physical Review C, Volume **101**, article id.025803 (2020)

- Rrapaj, E.; **Sieverding, A.;** Qian, Y.-Z.; *Rate of dark photon emission from electron*
- *positron annihilation in massive stars*, Physical Review D **100**, 023009 (2019)

- Langanke, K.; Martínez-Pinedo G.; **Sieverding, A.**; *Neutrino Nucleosynthesis: An Overview*, AAPPS Bulletin, Vol. **28**, no. 6, p. 41 (2018)

- Xing, Y. M.; Li, K. A.; Zhang, Y. H.; Zhou, X. H.; Wang, M.; Litvinov, Yu. A.; Blaum, K.; Wanajo, S.; Kubono, S.; Martínez-Pinedo, G.; **Sieverding, A**.; Chen, R. J.; Shuai, P.; Fu, C. Y.; Yan, X. L.; Huang, W. J.; Xu, X.; Tang, X. D.; Xu, H. S.; Bao, T.; Chen, X. C.; Gao, B. S.; He, J. J.; Lam, Y. H.; Li, H. F.; Liu, J. H.; Ma, X. W.; Mao, R. S.; Si, M.; Sun, M. Z.; Tu, X. L.; Wang, Q.; Yang, J. C.; Yuan, Y. J.; Zeng, Q.; Zhang, P.; Zhou, X.; Zhan, W. L.; Litvinov, S.; Audi, G.; Uesaka, T.; Yamaguchi, Y.; Yamaguchi, T.; Ozawa, A.; Fröhlich, C.; Rauscher, T.; Thielemann, F. -K.; Sun, B. H.; Sun, Y.; Dai, A. C.; Xu, F. R.; *Mass Measurements of Very Neutron-Deficient Y, Zr, and Nb Isotopes and Their Impact on rp and νp Nucleosynthesis Processes;* Physics Letters B **781**, p. 358 (2018)

- Martínez-Pinedo, G.; Fischer, T.; Langanke, K.; Lohs, A.; **Sieverding, A**.; Wu, M.-R.; *Neutrinos and their Impact on Core-Collapse Supernova Nucleosynthesis*, Handbook of Supernovae, ISBN

978-3-319-21845-8. Springer International Publishing AG, edited by Athem W. Alsabti and Paul Murdin (2017)

- Marketin, T.; **Sieverding, A.**; Wu, M. -R.; Paar, N.; Martínez-Pinedo, G.*; Microscopic Calculations of beta -decay Rates for r-process*; Acta Physica Polonica B, vol. **48**, p. 641 (2017)

Seminars and oral presentations at workshops (Last 3 years)

Invited talk	*"Nucleosynthesis with multi-dimensional Core-Collapse Supernova Simulations*", INT program *Radionuclides: Nuclear Physics, Astrophysical Models, and Observations*, hosted by the Institute for Nuclear Theory (INT), Seattle, USA, October 2021
Contributing talk	*"Nucleosynthesis with 3D Supernova Simulations*", Fall meeting of the Division of Nuclear Physics of the American Physical Society (APS), hosted by the Massachusetts Institute for Technology (MIT), Boston, USA, October 2021.
Invited talk	*"Impact of Fast Flavor Oscillations on Core-Collapse Supernova nucleosynthesis*", INT electronic workshop on *New Directions in Neutrino Flavor Evolution in Astrophysical Systems*, hosted by the Institute for Nuclear Theory (INT), Seattle, USA, September 2021
Invited talk	*"Nucleosynthesis with modern Core-Collapse Supernova Simulations",* Toward Exascale Astrophysics of Mergers and Supernovae (TEAMS) collaboration meeting, hosted by the Michigan State University, USA, August 2021.
Invited seminar	*"Impact of Fast Flavor Oscillations on Neutrino-driven Winds*", N3AS Online Seminar Series, hosted by UC Berkeley, USA, December 2020.
Invited seminar	*"Nucleosynthesis with 3D core-collapse supernova simulations and implications for the early solar system",* High Energy/Astrophysics seminar, University of Tennessee, Knoxville, USA, November 2020.
Invited talk	*"The role of the ν process and multi-D effects for the production of ^{26}Al",* ChETEC Workshop about Reaction rates and stellar modelling affecting the ^{26}Al abundance in the Galaxy at the University of York, UK, March 2020.
Invited seminar	*"Nucleosynthesis with 3D core-collapse supernova simulations and implications for the early solar system",* Konkoly Observatory, Hungary: March 2020.
Invited talk	*"Radioactive Nuclei from the supernova ν process",* ISSI-BJ meeting, Beijing, China, November 2019.
Invited seminar	*"Nucleosynthesis based on a 3D core-collapse supernova simulation and implications for the early solar system",* Michigan State University/NSCL, USA, October 2019.
Contributing talk	*"Nucleosynthesis of a 3D core-collapse supernova simulation",* Midwest Workshop on Supernovae and Transients, Ohio State University, USA, September 2019.
Contributing talk	"*The ν process with fully time-dependent supernova neutrino emission spectra*", JINA Frontiers in Nuclear Astrophysics conference, Michigan State University, USA: May 2019.
Contributing talk	*"Neutrino nucleosynthesis with time-dependent neutrino-emission spectra*" ECT* workshop "SN neutrinos at the crossroads: astrophysics, oscillations and detection", Trento, Italy, May 2019.
Invited seminar	*"Neutrinos in core-collapse supernova nucleosynthesis",* NUSTAR seminar at the GSI Helmholtz Centre for Heavy Ion Research, Darmstadt, Germany, May 2019.