

EDWARD J. STECH, PH.D.

CURRENT POSITION

Associate Professional Specialist, July 2009 - present
Joint Institute for Nuclear Astrophysics
Department of Physics, UNIVERSITY OF NOTRE DAME
225 Nieuwland Science Hall; Notre Dame, IN 46556-5639
574.631.7716; email: estech@nd.edu

PREVIOUS POSITIONS

Assistant Professional Specialist August, 2003 - June, 2009

EDUCATION

Ph.D., Physics, University of Notre Dame May, 2004
Dissertation: *The Astrophysical Impact of $^{20}\text{Ne}(p,g)^{21}\text{Na}$*
(Advisor Dr. Michael Wiescher)
M.S., Physics, University of Notre Dame January, 2001
(Advisor Dr. Michael Wiescher)
B.S., Physics, *magna cum laude*, University of Notre Dame May, 1995

HONORS AND AWARDS

University Fellowship 1995-96
University of Notre Dame
Dean's Honor List, (every year) 1992-95
College of Science, University of Notre Dame 1991-92
First Year Studies, University of Notre Dame

SELECTED PUBLICATIONS

1. "First Measurement of Excited States in the Very Proton Rich Nucleus ^{24}Si and the Consequences for ^{22}Na Nucleosynthesis in Novae," H. Schatz, J. Görres, H. Herndl, N.I. Kaloskamis, E. Stech, P. Tischhauser, M. Wiescher, A. Bacher, G.P.A. Berg, T.C. Black, S. Choi, C.C. Foster, K. Jiang, E.J. Stephenson, *Phys. Rev. Lett.* 79, 3845 (1997)
2. "Half-Life of ^{44}Ti as a Probe for Supernova Models," J. Görres, J. Meissner, H. Schatz, E. Stech, P. Tischhauser, M. Wiescher, D. Bazin, R. Harkewicz, M. Hellstrom, B. Sherrill, M. Steiner, R.N. Boyd, L. Buchmann, D.H. Hartmann, J.D. Hinnefeld, *Phys. Rev. Lett.* 80, 2554 (1998)
3. "Elastic Scattering Results from $^{12}\text{C}(\alpha,\alpha)^{12}\text{C}$ and Implications for $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$," P. Tischhauser, R. Azuma, L. Buchmann, R. Detwiler, U. Giesen, J. Görres, M. Heil, J. Kolata, A. Shotter, E. Stech, M. Wiescher, *Proc. Intern. Symposium on Nuclear Astrophysics, Nuclei in the Cosmos V*, Volos, Greece, July 6-11, 1998, N. Prantzos, S. Harissopulos, Eds., Editions Frontieres, Paris, p.99 (1998)
4. "Low-Energy Resonances in $^{14}\text{N}(\alpha,\gamma)^{18}\text{F}$ and Their Astrophysical Implications", J. Görres, C. Arlandini, U. Giesen, M. Heil, F. Kappeler, H. Leiste, E. Stech, M. Wiescher, *Phys. Rev. C* 62, 055801 (2000)
5. "Restrictions on the Stellar $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ Rate from Elastic α - ^{12}C Scattering," L. Buchmann, P. Tischhauser, R.E. Azuma, R. Detwiler, U. Giesen, J. Görres, M. Heil, J. Hinnefeld, F. Kappeler, J.J. Kolata, H. Schatz, A. Shotter, E. Stech, S. Vouzoukas, M. Wiescher, *Nucl. Phys. A* 688, 259c (2001)
6. "Topics in Stellar He Burning ", J. Görres, C. Arlandini, U. Giesen, M. Heil, F. Kappeler, H. Leiste, E. Stech, M. Wiescher, *Nucl. Phys. A* 688, 225c (2001)
7. "A Measurement of the $^{13}\text{C}(\alpha,\alpha)$ Differential Cross Section and Its Application to the $^{13}\text{C}(\alpha,n)$ Reaction" M. Heil, A. Couture, J. Daly, R. Detwiler, J. Görres, G. Hale, F. Kappeler, R. Reifarth, U. Giesen, E. Stech, P. Tischhauser, C. Ugalde, M. Wiescher, *Nucl. Phys. A* 688, 499c (2001)
8. "Elastic α - ^{12}C Scattering and the $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ E_2 S Factor," P. Tischhauser, R.E. Azuma, L. Buchmann, R. Detwiler, U. Giesen, J. Görres, M. Heil, J. Hinnefeld, F. Kappeler, J.J. Kolata, H. Schatz, A. Shotter, E. Stech, S. Vouzoukas, M. Wiescher, *Phys. Rev. Lett.* 88, 072501 (2002)
9. "Rotational and vibrational excitations in ^{84}Zr studied through in-beam and ^{84}Nb beta-decay spectroscopy ," J. Doring, R.A. Kaye, A. Aprahamian, M.W. Cooper, J. Daly, C.N. Davids, R.C. de Haan, J. Görres, S.R. Leshner, J.J. Ressler, D. Seweryniak, E.J. Stech, A. Susalla, S.L. Tabor, J. Uusitalo, W.B. Walters, M. Wiescher, *Phys. Rev. C* 67, 014315 (2003)

10. "The reaction rate for the destruction of fluorine in AGB stars," C. Ugalde, R. Azuma, A. Couture, J. Görres, M. Heil, K. Scheller, E. Stech, W. Tan, M. Wiescher, *Nuclear Physics A* 758, 577C-580C (2005)
11. "Lifetime of the astrophysically important 4.03-MeV state in Ne-19", W.P. Tan, J. Görres, J. Daly, M. Couder, A. Couture, H.Y. Lee, E. Stech, E. Strandberg, C. Ugalde, M. Wiescher, *Physical Review C*, 72 (4), (2005)
12. "Astrophysical S factor for alpha-capture on ^{112}Sn in the p-process energy range", N. Ozkan, G. Efe, R.T. Guray, A. Palumbo, J. Görres, H.Y. Lee, L.O. Lamm, W. Rapp, E. Stech, M. Wiescher, Gy. Gyurky, Zs. Fulop, E. Somorjai, *Physical Review C*, 75, 025801 (2007)
13. "Design of the recoil mass separator St. George," M. Couder, G.P.A. Berg, J. Görres, P.J. LeBlanc, L.O. Lamm, E. Stech, M. Wiescher and J. Hinfefeld, *Nucl. Instr. Meth. A* 587, 35 (2008)
14. "Measurement of elastic $^{12}\text{C} + \alpha$ scattering: Details of the experiment, analysis, and discussion of phase shifts," P. Tischhauser, A. Couture, R. Detwiler, J. Görres, C. Ugalde, E. Stech, M. Wiescher, H. Heil, F. Käppeler, R.E. Azuma, L. Buchmann, *Phys. Rev. C* 79, 055803 (2009)
15. "Measurement of the decay branching ratios of the α -unbound states in ^{19}Ne and the $^{15}\text{O}(\alpha,\gamma)$ reaction rate," W.P. Tan, J. Görres, M. Beard, M. Couder, A. Couture, S. Falahat, J.L. Fisker, L. Lamm, P.J. LeBlanc, H.Y. Lee, S. O'Brien, A. Palumbo, E. Stech, E. Strandberg, and M. Wiescher, *Phys. Rev. C* 79, 055805 (2009)
16. "Cross-section measurement of the $^{18}\text{Fe}(\alpha,p)^{21}\text{Ne}$ reaction and possible implication for neutron production in explosive helium burning," H.Y. Lee, M. Couder, A. Couture, S. Falahat, J. Görres, L. Lamm, P.J. LeBlanc, S. O'Brien, A. Palumbo, E. Stech, E. Strandberg, W. Tan, C. Ugalde, and M. Wiescher, *Phys. Rev. C* 80, 025805 (2009)
17. "Production and characterization of oxygen-reduced implanted ^{21}Ne targets," H.Y. Lee, J. Görres, H.-W. Becker, E. Stech, E. Strandberg, and M. Wiescher, *Nuclear Instruments and Methods in Physics Research B* (in print) 2009.