

A. BIOGRAPHICAL SKETCH - Romualdo T. de Souza

Current Position: Provost Professor, Professor of Chemistry
Adjunct Professor of Physics, Indiana University,
Faculty, Center for Exploration of Energy and Matter

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Research Interests: My primary interest is in the properties of nuclear matter under extreme conditions of excitation, density, shape, and N/Z; characterizing the spatial-temporal extent of the a multifragmenting nuclear system by using fragment-fragment velocity correlations; excitation energy sharing in damped heavy-ion reactions; ternary fission; dynamics of near and sub-barrier light-ion fusion; pycnonuclear reactions; X-ray Superbursts

Education and Training: A.B. (Chemistry), Washington University in St. Louis, 1983; M.S. (Chemistry) University of Rochester, 1985; Ph.D. (Nuclear Chemistry) University of Rochester 1987; Postdoc (Huizenga/Schroder), University of Rochester 1988; NSCL Postdoctoral Fellow (Gelbke (MSU)/Lynch (MSU), Michigan State University 1988 – 1991.

Research and Professional Experience: 1991 – 1997 Assistant Professor, Indiana University; 1997 – 2002 Associate Professor, Indiana University; 2002 – 2010, Professor Indiana University; 2010 – Present Provost Professor, Indiana University; 1999-2000 Visiting Scientist Grand Accelérateur National d'Ions Lourds (GANIL), Caen, France.

Publications:

125 articles in refereed Journals; Invited Talks and Seminars: 99; Contributed Oral Presentations: 72

- **Sub-barrier enhancement of fusion as compared to a microscopic method in $^{18}\text{O}+^{12}\text{C}$** , T. K. Steinbach, J. Vadas, J. Schmidt, C. Haycraft, S. Hudan, R. T. deSouza, L. T. Baby, S. A. Kuvin, I. Wiedenhover, A. S. Umar, V. E. Oberacker, Phys. Rev. C **90**, 041603(R) (2014).
- **Confronting near and sub-barrier fusion cross-sections for $^{20}\text{O}+^{12}\text{C}$ with a microscopic method**, R.T. de Souza, S. Hudan, V. E. Oberacker, A. S. Umar, Phys. Rev. C **88**, 014602 (2013).
- **Timescale for equilibration of N/Z gradients in dinuclear systems**, K. Brown, S. Hudan, R.T. de Souza, J. Gauthier, R. Roy, D.V. Shetty, G.A. Souliotis, S.J. Yennello, Phys. Rev. C **87**, 061601(R) (2013).
- **Short-lived binary splits of an excited projectile-like fragment induced by transient deformation**, A.B. McIntosh, S. Hudan, J. Black, D. Mercier, C.J. Metelko, R. Yanez, R.T. de Souza, A. Chbihi, M. Famiano, M.O. Fregeau, J. Gauthier, J. Moisan, R. Roy, S. Bianchin, C. Schwarz, W. Trautmann, Phys. Rev. C **81**, 034603 (2010).
- **Tidal Effects and the Proximity Decay of Nuclei**, A.B. McIntosh, S. Hudan, C.J. Metelko, R.T. de Souza, R.J. Charity, W.G. Lynch, Phys. Rev. Lett. **99**, 132701 (2007).
- **Neutron to proton ratios of quasiprojectile and midrapidity emission in the $^{64}\text{Zn}+^{64}\text{Zn}$ reaction at 45 MeV/nucleon**, D. Thériault, J. Gauthier, F. Grenier, F.

Moisan, C. St-Pierre, R. Roy, B. Davin, S. Hudan, T. Padaszynski, R.T. de Souza, E. Bell, J. Garey, J. Igllo, A.L. Keksis, S. Parketon, C. Richers, D.V. Shetty, S.N. Soisson, G.A. Souliotis, B.C. Stein, and S.J. Yennello, Phys. Rev. C **74**, 051602(R) (2006).

- **Short timescale behavior of colliding heavy nuclei at intermediate energies**, S. Hudan, R.T. de Souza, and A. Ono, Phys. Rev. C **73**, 054602 (2006).
- **Excitation and decay of projectile-like fragments formed in dissipative peripheral collisions at intermediate energies**. R. Yanez, S. Hudan, R. Alfaro, B. Davin, Y. Larochele, H. Xu, L. Beaulieu, T. Lefort, V.E. Viola, R.T. de Souza, T.X. Liu, X.D. Liu, W.G. Lynch, R. Shomin, W.P. Tan, M.B. Tsang, A. Vander Molen, A. Wagner, H.F. Xi, R.J. Charity, and L.G. Sobotka Phys. Rev. C **68**, 011602(R) (2003).
- **Fragment Production in Non-central Collisions of Intermediate Energy Heavy Ions**, B. Davin, R. Alfaro-Molina, H. Xu, L. Beaulieu, Y. Larochele, T. Lefort, R Yanez, A. Caraley, R.T. de Souza, T.X. Liu, X.D. Liu, W.G. Lynch, R. Shomin, W.P. Tan, M.B. Tsang, A. Vander Molen, A. Wagner, H.F. Xi, C.K. Gelbke, R.J. Charity, L.G. Sobotka, Phys. Rev. C. **65**, 064614 (2002).
- **Transition from Surface to Bulk Emission in Thermal Multifragmentation**, L. Beaulieu, K. Kwiatkowski, W.-c. Hsi, T. Lefort, R. de Souza, G. Wang, D.S. Bracken, E. Cornell, D.S. Ginger, V.E. Viola, L. Pienkowski, R.G. Korteling, R. Laforest, E. Martin, E. Ramakrishnan, D. Rowland, A. Ruangma, E. Winchester, S.J. Yennello, S. Gushue, L.P. Remsberg, H. Breuer, and B. Back, Phys. Rev. Lett. **84**, 5971 (2000).

Patent Information: None

Synergistic Activities: Referee: Physical Review C, Phys. Rev. Lett, Nucl. Instr. And Meth., NSF, USDOE, ACS PRF; ACS Div. of Nuclear Chemistry and Technology, Coryell Award Committee; Reviewer: Dept. of Energy Panel, TAMU; Arranged three national Symposia.

Identification of Potential Conflicts of Interest or Bias in Selection of Reviewers:

Collaborators and Co-editors:

L. T. Baby, Florida State University	C. Horowitz, Indiana University
V. E. Oberacker, Vanderbilt University	I. Wiedenhoever, Florida State University
S. Umar, Vanderbilt University	

Graduate and Postdoctoral Advisors and Advisees:

- **Former Postdocs:**
Ricardo Yanez: University of Chile / Oregon State University
Carl Metelko: Rutherford-Appleton Labs, UK
- **Former Graduate Students:**
Alan McIntosh, Texas A&M University
Michael Rudolph,
Zachary Gosser

Current Postdoctoral: Dr. Varinderjit Singh, Dr. Davinder Siwal

Current Graduate Students: (3) Tracy Steinbach, Justin Vadas, and B.B. Wiggins

Current Undergraduate Students: Jacob Huston

Students Supervised:

Postdoctoral (13): Dr. Dan Fox, Dr. Yunian Lou, Dr. Earl Cornell, Dr. Yves Larochelle, Dr. Ruben Alfaro-Molina, Dr. Thomas Lefort, Prof. Anne Caraley, Dr. Hushan Xu, Prof. Ricardo Yanez, Dr. Tomasz Padaszynski, Dr. Carl Metelko, Dr. Damien Mercier, and Dr. Eric Richardson

Ph.D. Students (4): Dr. Brian Davin, Dr. Todd Hamilton, Dr. Todd Bredeweg, and Dr. Alan McIntosh

M.S. Students (4): Shaolin Chen, Dr. Nickie Peters, Mike Rudolph, and Zachary Gosser

Recent Undergraduates (out of 18): Dr. Brice Floyd, Kyle Brown, Joe Krupa, Andrew Liao, and Jon Schmidt

High School Students (>20)

Awards:2010 Provost Professor, 2008 IU Trustees' Teaching Award; 2008 Glenn T. Seaborg Award for Nuclear Chemistry, American Chemical Society; SBC/Ameritech Fellow, 2002-2003; Indiana University President's Award, 1998 Gill Fellow, Indiana University, 1997 – 2001; Teaching Excellence Recognition Award, Indiana University, 1997,1998; A.P. Sloan Fellow, 1994 – 1997; NSCL Fellow, Michigan State University, 1988 – 1991; Arnold Weissberger Graduate Fellowship, University of Rochester, 1986 – 1987; Elon Huntington Hooker Graduate Fellowship, University of Rochester, 1986 – 1987; Sherman Clarke Graduate Fellowship, University of Rochester, 1984 - 1987.