



Curriculum Vitae - Jose P. D'Incao

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Research Interests

- Ultracold quantum gases, strongly interacting few-body systems, novel quantum states, Efimov physics
- Ultracold chemistry, State-to-state chemistry; coherent control of ultracold chemical reactions
- Non-equilibrium dynamics and thermalization of isolated few-body quantum systems
- Searches for novel phases of the matter with strong few-body correlations

Professional Experience

- Associate Research Professor: Department of Physics, University of Colorado, 02/2023 - present
- Assistant Research Professor: Department of Physics, University of Colorado, 02/2015 - 02/2023
- Senior Research Associate: JILA, University of Colorado and NIST, 03/2008 - present
- Visiting Professor, Department of Physics, Ulm University, 02/2019 - present (supported by Johannes Denschlag)
- Senior Scientist: IQOQI - University of Innsbruck, Austria, 01/2009 - 04/2009 (supported by Rudolf Grimm)
- Postdoctoral Research: JILA, University of Colorado and NIST, 07/2006-03/2012 (with Chris H. Greene).
- Postdoctoral Research: Physics Dept., Kansas State University, 09/2003-07/2006 (with Brett D. Esry).
- Visiting Scholar, Institute for Nuclear Theory, University of Washington, WA, 03/2005, 08/2010 and 03/2014
- Visiting Scholar, Kavli Institute for Theoretical Physics, Santa Barbara, CA, 01/2013, 11/2016, 05/2022

Teaching Experience

- Physics Department, University of Colorado at Boulder. Courses: Special Topics in Physics: [Scattering in Quantum Gases](#) (PHYS-7810, Fall 2019, Graduate Level), General Physics I (PHYS-1110, Spring 2017, 2022), Guest Lectures: Quantum Mechanics, Electricity and Magnetism, and Classical Mechanics (2008-2022, Undergraduate Level).
- Department of Mathematics, Federal University of Sao Carlos, Brazil. Courses: Differential Equations and their applications; Numerical Calculus; Calculus I and II; Analytical Geometry (2001-2003, Undergraduate Level).
- Teaching Assistant. Physics Department, University of Sao Paulo, Brazil. Courses: Electricity and Magnetism, Introduction to Group Theory and Electromagnetism (1998-1999, Undergraduate Level).

Education

- Ph.D. in Physics, 1997-2002: "Potential curves and hyperspherical channel functions for the lithium atom", University of Sao Paulo, Institute of Physics of Sao Carlos, Brazil. Adviser: Dr. E. S. Bernardes.
- M.Sc. in Physics, 1995-1997: "Wave functions for the lithium atom in hyperspherical coordinates", University of Sao Paulo, Institute of Physics of Sao Carlos, Brazil. Advisor: Dr. J. E. M. Hornos
- B.A. in Physics, 1991-1995. University of Sao Paulo, Institute of Physics of Sao Carlos, Brazil. Scientific Initiation fellowship/CNPq-Brazil

Professional Activities, Awards, and Organizations

- Fellow of the American Physical Society (APS, 2015). Citation: "*For contributions to our understanding of fundamental low-energy few-body physics, including Efimov physics, and its application to ultracold atomic and molecular gases*"
- Chair, APS Topical Group: Few-body systems and Multiparticle Dynamics (GFB): 2016-2021;
- APS Fellowship Nomination and Selection Committee (GFB), 2017/2018;
- Program Committee, APS Division of Atomic, Molecular, and Optical physics (DAMOP): 2017-present;
- National Science Foundation (NSF) Panelist, 2020-present;
- National Science Foundation (NSF): grant reviewer, 2017-present;

- European Research Council (ERC): grant reviewer, 2016-present;
- Guest Editor of Special Issue: "Few-body Physics in Ultracold Quantum Gases", Atoms (MDPI), (http://www.mdpi.com/journal/atoms/special_issues/Ultracold_Quantum_Gases);
- Graduate School Committee, Department of Physics, University of Colorado, 2015-Present;
- Referee: Nature, Nature Physics, Nature Communications, Science, Physical Review Letters, Physical Review A, Physical Review B, Review of Modern Physics, Journal of Physics B, Journal of Physics A, Journal of Physics G, New Journal of Physics, Physics Letter A, Eur. Phys. J. D.

Current, Pending and Past Support

Agency	Project Title	Period(s)	Role(s)	Award(s)	Status
ONR	<i>Metamaterial-lens optical tweezer trapping of few atom systems for light-assisted collision studies (Cindy Regal, PI)</i>	04/21-04/24	Co-PI	\$645K	Current
NASA	<i>Zero-G Studies of Few-Body and Many-Body Physics (Eric Cornell, PI) Renew</i>	09/21-09/24 04/15-09/21	Senior Personnel	\$360K \$65K/year	Current (Expired)
NASA	<i>Fundamental Interactions for Atom Interferometry with ultracold gases in a microgravity environment (Jason Williams, PI)</i>	09/21-09/24 07/14-07/19	Co-PI Co-PI	\$90K \$1200K	Current (Expired)
NSF	<i>Universality Puzzles and Coherent Control of Efimov Physics in 7Li</i>	08/20-08/23	PI	\$240K	Current
BSW/GE	<i>Control of an ultracold Chemical reaction on the state-to-state level (Johannes Denschlag, PI)</i>	12/18-12/22	Senior Personnel	\$160K	Current
NSF	<i>Few-body interactions in ultracold quantum gases</i>	08/16-08/19 08/13-08/16 08/10-08/13	PI PI PI	\$90K \$60K \$300K	(Expired) (Expired) (Expired)
NASA	<i>Fundamental interactions in ultracold quantum gases in microgravity (Peter Engles, PI)</i>	2024-2029	Co-PI	\$750K	Pending
NASA	<i>A Molecular toolkit for fundamental physics and matter wave interferometry in microgravity (Ethan Elliot, PI)</i>	2024-2029	Co-PI	\$750K	Pending
NSF	<i>Universality Puzzles and Coherent Control of Efimov Physics in 7Li</i>	08/20-08/23	PI	\$410K	Pending
TBD	<i>Coherent control of state-to-state ultracold chemical reactions (with Johannes H. Denschlag)</i>	TBD	PI	TBD	In preparation

Students and Postdoctoral Researchers

Name	Level	Project Title/Topic	Period	Role
Jinglun Li (Denschlag)	Postdoctoral Researcher	<i>State-to-State ultracold chemistry</i>	09/21-present	Co-Advisor
Jacek Gębala (Tomza)	PhD	<i>Hybrid atom-ion systems and ultracold chemical reactions</i>	09/21-present	Co-Advisor
Tzu-Chi Hsieh (Radzihovsky)	PhD	<i>Eigenstate thermalization hypothesis for isolated quantum few-body systems</i>	09/17-present	Mentor
Shaun Kapla	Undergrad	<i>Dipolar interactions and field-induced resonances</i>	04/22-present	Advisor

Mark Brown (Regal)	PhD	<i>Molecular potentials for atom-loading in optical tweezers (ONR)</i>	02/20-02/22	Mentor
John Wilson (Holland)	PhD	<i>State-to-State ultracold chemistry</i>	08/20-06/21	Mentor
Kirk Waiblinger	Undergrad	<i>Honors Thesis: Optimizing formation of heteronuclear Feshbach molecules in microgravity using magnetic field quenches</i>	08/16-08/19	Advisor
Paul Mestrom (Kokkelmans)	Graduate Visiting Student	<i>Efimov-van der Waals universality for ultracold atoms with positive scattering lengths</i>	06/16-09/17	Advisor
Victor Colussi (Holland)	PhD	<i>Ultracold Gas Theory from the Top-Down and Bottom-Up</i>	08/12-08/16	Mentor
Yujun Wang (Greene)	Postdoctoral Researcher	<i>Few-body interactions in ultracold quantum gases (NSF)</i>	08/10-08/13	Mentor
Jia Wang (Greene)	PhD	<i>Thesis: Hyperspherical Approach to Quantal Three-body Theory</i>	08/06-08/12	Mentor

Research Highlights

- [Precise Measurements Find a Crack in Universal Physics \(phys.org\)](#), January 2020
- [Three-Body Interactions, Not So Universal After All \(Physics, APS\)](#), December 2019
- [How Universal is Universality? \(JILA Light & Matter\)](#), December 2019
- [Battle of the Elements round three, ultracold atoms in space, life on other planets, \(physicsworld\)](#) June 2019
- [JILA researchers see signs of interactive form of quantum matter \(EurekAlert!\)](#), October 2018
- [Nobel Prize-winning atomic research debuts in space \(CU Boulder Today\)](#), August 2018
- [BEC headed to space \(JILA Light & Matter\)](#), May 2018
- [It's triplets! \(JILA Light & Matter\)](#), October 2017
- [Variation on an Infinity of Triangles \(JILA Light & Matter\)](#), February 2012
- [Laws of Attraction \(JILA Light & Matter\)](#), June 2011
- [New place to search for Efimov states \(Physics, APS\)](#), June 2011
- [Ultracold controlled chemistry \(Physics, APS\)](#), February 2010
- [From three to four: a quantum leap in few-body physics \(phys.org\)](#), April 2009
- [Ultracold experiments strike universal physics—again \(Physics, APS\)](#), April 2009
- [Rave Reviews for the Efimov Quartet \(JILA Light & Matter\)](#), July 2009
- [Collision course \(JILA Light & Matter\)](#), April 2009
- [Lights, Magnets, Action! \(JILA Light & Matter\)](#), February 2008

Complete List of Publications

citations: 3037; h-index: 31 (as off 06/27/2022)

(see updates at [google scholar](#))

⁶⁴ *Energy-scaling of the product state distribution for three-body recombination of ultracold atoms*, S. Haze, J. P. D'Incao, J. Wilson, D. Dorer, J. Li, M. Deiss, E. Tiemann, P. S. Julienne, and J. H. Denschlag, [arXiv:2211.03834](#) (2022)

⁶³ *Perspectives and Opportunities: a molecular toolkit for fundamental physics and matter wave interferometry in microgravity*, J. P. D'Incao, J. R. Williams, N. Gaaloul, M. Efremov, S. Nimmrichter, B. Schriniski, E. R. Elliott, W. Ketterle, [Quantum Sci. Technol. 8, 014004 \(2023\)](#)

⁶² *Observation of unitary p-wave interactions between fermions in an optical lattice*, V. Venu, P. Xu, M. Mamaev, F. Corapi, T. Bilitewski, J. P. D'Incao, C. Fujiwara, A. M. Rey, J. H. Thywissen, [Nature 613, 262 \(2023\)](#)

- ⁶¹ *Spin-conservation propensity rule for state-to-state ultracold 85Rb three-body recombination*, S. Haze, J. P. D'Incao, D. Dorer, M. Deiss, E. Tiemann, P. S. Julienne, and J. H. Denschlag, [Phys. Rev. Lett. 128, 133401 \(2022\)](#)
- ⁶⁰ *Quenched magneto association of Feshbach molecules*, K. Waiblinger, J. R. Williams, and J. P. D'Incao, [Phys. Rev. A 104, 033310 \(2021\)](#)
- ⁵⁹ *Observation of Efimov Universality across a Non-Universal Feshbach Resonance in 39K* , X. Xie, M. J. Van de Graaff, R. Chapurin, M. D. Frye, J. M. Hutson, J. P. D'Incao, P. S. Julienne, J. Ye, E. A. Cornell, [Phys. Rev. Lett. 125, 243401 \(2020\)](#)
- ⁵⁸ *Interplay between coherent and dissipative dynamics of bosonic doublons in an optical lattice*, M. J. Mark, S. Flannigan, F. Meinert, K. Jag-Lauber, J. P. D'Incao, A. J. Daley, H. -C. Nagerl, [Phys. Rev. Res. 2, 043050 \(2020\)](#)
- ⁵⁷ *Precision Test of the Limits to Universality in Few-Body Physics*, R. Chapurin, X. Xie, M. J. Van de Graaff, J. S. Popowski, J. P. D'Incao, P. S. Julienne, J. Ye, and E. A. Cornell, [Phys. Rev. Lett. 123, 233402 \(2019\)](#) [Editor's Suggestion, [Featured Physics, APS](#)].
- ⁵⁶ *Bunching, clustering, and the buildup of few-body correlations in a quenched unitary Bose gas*, V. E. Colussi, B. E. van Zwol, J. P. D'Incao, and S. J. J. M. F. Kokkelmans, [Phys. Rev. A 99, 043604 \(2019\)](#)
- ⁵⁵ *Emergence of multi-body interactions in a fermionic lattice clock*, A. Goban, R. B. Hutson, G. E. Marti, S. L. Campbell, M. A. Perlin, P. S. Julienne, J. P. D'Incao, A. M. Rey, and J. Ye, [Nature 563, 369 \(2018\)](#)
- ⁵⁴ *Efimov Physics in Quenched Unitary Bose Gases*, J. P. D'Incao, J. Wang, and V. E. Colussi, [Phys. Rev. Lett. 121, 023401 \(2018\)](#)
- ⁵³ *Dynamics of Three-body Correlations in Quenched Unitary Bose Gases*, V. E. Colussi, J. P. Corson, J. P. D'Incao, [Phys. Rev. Lett. 120, 100401 \(2018\)](#)
- ⁵² Tutorial: *Few-body physics in resonantly interacting ultracold quantum gases*, J. P. D'Incao, [J. Phys. B 51, 043001 \(2018\)](#)
- ⁵¹ *Efimov States of Strongly Interacting Photons*, M. J. Gullans, S. Diehl, S. Rittenhouse, B. R. Ruzic, J. P. D'Incao, P. S. Julienne, A. V. Gorshkov, and J. M. Taylor, [Phys. Rev. Lett. 119, 233601 \(2017\)](#)
- ⁵⁰ *State-to-state chemistry for three-body recombination in an ultracold rubidium gas*, J. Wolf, M. Deiss, A. Kurkow, E. Tiemann, B. P. Ruzic, Y. Wang, J. P. D'Incao, P. S. Julienne, and J. H. Denschlag, [Science 358, 921 \(2017\)](#)
- ⁴⁹ *Observation of Efimov molecules created from a resonantly interacting Bose gas*, C. E. Klauss, X. Xie, C. Lopez-Abadia, J. P. D'Incao, Z. Hadzibabic, D. S. Jin, and E. A. Cornell, [Phys. Rev. Lett. 119, 143401 \(2017\)](#)
- ⁴⁸ *Efimov-van der Waals universality for ultracold atoms with positive scattering lengths*, P. M. A. Mestrom, J. Wang, C. H. Greene, and J. P. D'Incao, [Phys. Rev. A 95, 032707 \(2017\)](#) [Editor's Suggestion]
- ⁴⁷ *Effective Control of Cold Collisions with Radio Frequency Fields*, Y. Ding, J. P. D'Incao, and C. H. Greene, [Phys. Rev. A 95, 022709 \(2017\)](#)
- ⁴⁶ *Enhanced association and dissociation of heteronuclear Feshbach molecules in a microgravity environment*, J. P. D'Incao, M. Krutzik, E. Elliott, and J. R. Williams, [Phys. Rev. A 95, 012701 \(2017\)](#)
- ⁴⁵ *On the appearance of families of Efimov states in the spinor three-body problem*, V. E. Colussi, C. H. Greene, and J. P. D'Incao, [EPJ Web of Conf. 113, 02003 \(2016\)](#)
- ⁴⁴ *Universal few-body physics in resonantly interacting spinor condensates*, V. E. Colussi, C. H. Greene, and J. P. D'Incao, [J. Phys. B 49, 064012 \(2016\)](#)
- ⁴³ *Generalized Efimov effect in one dimension*, S. Moroz, J. P. D'Incao, and D. S. Petrov, [Phys. Rev. Lett. 115, 180406 \(2015\)](#)
- ⁴² *Erratum: Universal Three-body Parameter in Heteronuclear Atomic Systems*, Y. Wang, J. Wang, J. P. D'Incao, and C. H. Greene, [Phys. Rev. Lett. 115, 069901 \(2015\)](#)
- ⁴¹ *Ultracold three-body recombination in two-dimensions*, J. P. D'Incao, F. Anis and B. D. Esry, [Phys. Rev. A 91, 062710 \(2015\)](#)
- ⁴⁰ *Adiabatic hyperspherical representation for the three-body problem in two dimensions*, J. P. D'Incao and B. D. Esry, [Phys. Rev. A 90, 042707 \(2014\)](#)

- ³⁹ *Three-body physics in strongly correlated spinor condensates*, V. E. Colussi, C. H. Greene, J. P. D'Incao, [Phys. Rev. Lett. 113, 045302 \(2014\)](#)
- ³⁸ *Quenching to unitarity: Quantum dynamics in a 3D Bose gas*, A. G. Sykes, J. P. Corson, J. P. D'Incao, K. R. A. Hazard, A. P. Koller, C. H. Greene, A. M. Rey, and J. L. Bohn, [Phys. Rev. A 89, 021601 \(2014\)](#)
- ³⁷ *Ultracold few-body systems*, Y. Wang, J. P. D'Incao, and B. D. Esry, [Ad. At. Mol. Opt. Phys. 62, 1 \(2013\)](#)
- ³⁶ *The universality of the Efimov three-body parameter*, J. P. D'Incao, J. Wang, B. D. Esry and C. H. Greene, [Few-Body Syst. 54, 1523 \(2013\)](#)
- ³⁵ *Universal three-body recombination via d-wave interactions*, J. Wang, J. P. D'Incao, Y. Wang and C. H. Greene, [Phys. Rev. A 86, 062511 \(2012\)](#)
- ³⁴ *Universal three-body parameter in heteronuclear atomic systems*, Y. Wang, J. Wang, J. P. D'Incao, and C. H. Greene, [Phys. Rev. Lett. 109, 243201 \(2012\)](#)
- ³³ *Origin of the three-body parameter universality in Efimov physics*, J. Wang, J. P. D'Incao, B. D. Esry and C. H. Greene, [Phys. Rev. Lett. 108, 263001 \(2012\)](#)
- ³² *Numerical studies of three-body recombination for systems with many bound states*, J. Wang, J. P. D'Incao, and C. H. Greene, [Phys. Rev. A 84, 052721 \(2011\)](#)
- ³¹ *Universal three-body physics for fermionic dipoles*, Y. Wang, J. P. D'Incao, and C. H. Greene, [Phys. Rev. Lett. 107, 233201 \(2011\)](#)
- ³⁰ Topical review: *The hyperspherical four-fermion problem*, S. Rittenhouse, J. von Stecher, J. P. D'Incao, N. P. Mehta, and C. H. Greene, [J. Phys. B 44, 172001 \(2011\)](#)
- ²⁹ *Efimov effect for three interacting bosonic dipoles*, Y. Wang, J. P. D'Incao, and C. H. Greene, [Phys. Rev. Lett. 106, 233201 \(2011\)](#) [Featured Physics, APS]
- ²⁸ *Collisional aspects of bosonic and fermionic dipoles in quasi-two-dimensional confining geometries*, J. P. D'Incao and Chris H. Greene, [Phys. Rev. A 83, 030702 \(R\) \(2011\)](#)
- ²⁷ *Cold three-body collisions in Hydrogen-Alkali atomic systems*, Y. Wang, J. P. D'Incao, and B. D. Esry, [Phys. Rev. A 83, 032703 \(2011\)](#)
- ²⁶ *Ultracold three-body collisions near narrow Feshbach resonances*, Y. Wang, J. P. D'Incao and B. D. Esry, [Phys. Rev. A 83, 042710 \(2011\)](#)
- ²⁵ *Colliding Bose-Einstein condensates to observe Efimov physics*, Y. Wang, J. P. D'Incao, H.-C. Naegerl, and B. D. Esry, [Phys. Rev. Lett. 104, 113201 \(2010\)](#)
- ²⁴ *Magnetically Controlled Exchange Process in an Ultracold Atom-dimer Mixture*, S. Knoop, F. Ferlaino, M. Berninger, M. Mark, H.-C. Naegerl, R. Grimm, J. P. D'Incao and B. D. Esry, [Phys. Rev. Lett. 104, 053201 \(2010\)](#) [Editor's Suggestion, Featured in Physics, APS]
- ²³ *A general theoretical description of N-body recombination*, N. P. Mehta, S. Rittenhouse, J. P. D'Incao, J. von Stecher, and C. H. Greene, [Phys. Rev. Lett. 103, 153201 \(2010\)](#)
- ²² *Ultracold three-body collisions near overlapping Feshbach resonances*, J. P. D'Incao and B. D. Esry, [Phys. Rev. Lett. 103, 083202 \(2009\)](#)
- ²¹ *Universal four-body states in ultracold molecular gases: Resonant effects in dimer-dimer collisions*, J. P. D'Incao, J. von Stecher, and Chris H. Greene, [Phys. Rev. Lett. 103, 033004 \(2009\)](#)
- ²⁰ *Evidence for universal four-body states tied to an Efimov trimer*, F. Felaino, S. Knoop, M. Berninger, W. Harm, J. P. D'Incao, H.-C. Nagerl, and R. Grimm, [Phys. Rev. Lett. 102, 140401 \(2009\)](#) [Editor's Suggestion, Featured in Physics, APS]
- ¹⁹ *Signatures of four-body universal phenomena and their relation to the Efimov effect*, J. von Stecher, J. P. D'Incao, and C. H. Greene, [Nature Physics 5, 417 \(2009\)](#)
- ¹⁸ *Dimer-dimer collisions at finite energies in two-component Fermi gases*, J. P. D'Incao, S. T. Rittenhouse, N. P. Mehta, and C. H. Greene, [Phys. Rev. A. 79, 030501\(R\) \(2009\)](#)

- ¹⁷ *The short-range three-body phase and other issues impacting the observation of Efimov physics in ultracold quantum gases*, J. P. D'Incao, C. H. Greene and B. D. Esry, [J. Phys. B 42, 044016 \(2009\)](#)
- ¹⁶ *Superfluid phases of the three-species fermion gas*, P. Bedaque and J. P. D'Incao, [Ann. of Phys. 324, 1763 \(2009\)](#)
- ¹⁵ Book Chapter: *Hyperspherical Approach to the four-body problem*, N. P. Mehta, S. Rittenhouse, J. P. D'Incao, and C. H. Greene, [Atomic Structure and Collision Processes, p15-p26, Publisher: Narosa \(2009\)](#)
- ¹⁴ *Efimov states embedded in the three-body continuum*, N. P. Mehta, S. Rittenhouse, J. P. D'Incao, and C. H. Greene, [Phys. Rev. A 78, 020701\(R\) \(2008\)](#)
- ¹³ *Alternative paths to observing Efimov physics*, B. D. Esry, Yujun Wang, and J. P. D'Incao, [Few-Body Syst. 43, 63 \(2008\)](#)
- ¹² *Ultracold atom-molecule collisions with fermionic atoms*, J. P. D'Incao, B. D. Esry, and C. H. Greene, [Phys. Rev. A 77, 052709 \(2008\)](#)
- ¹¹ *Suppression of molecular decay in ultracold gases without Fermi statistics*, J. P. D'Incao and B. D. Esry, [Phys. Rev. Lett. 100, 163201 \(2008\)](#)
- ¹⁰ *Collisional stability of fermionic Feshbach molecules*, J. J. Zirbel, K.-K. Ni, S. Ospelkaus, J. P. D'Incao, C. E. Wieman, J. Ye, and D. S. Jin, [Phys. Rev. Lett. 100, 143201 \(2008\)](#)
- ⁹ *Efimov physics in ultracold three-body collisions*, B. D. Esry and J. P. D'Incao, [J. Phys.: Conf. Ser. 88, 012040 \(2007\)](#)
- ⁸ *Ultracold three-body systems with attractive $1/r$ potentials*, J. P. D'Incao, S. C. Cheng, H. Suno, and B. D. Esry, [Phys. Rev. A 75, 032503 \(2007\)](#)
- ⁷ *Ultracold three-body collisions and the role of the Efimov effect*, B. D. Esry and J. P. D'Incao, [Nucl. Phys. A 790, 742 \(2007\)](#)
- ⁶ *Mass dependence of ultracold three-body collision rates*, J. P. D'Incao and B. D. Esry, [Phys. Rev. A 73, 30702\(R\) \(2006\)](#)
- ⁵ *Enhancing the observability of the Efimov effect in ultracold atomic gas mixtures*, J. P. D'Incao and B. D. Esry, [Phys. Rev. A 73, 030703\(R\) \(2006\)](#)
- ⁴ *Manifestations of the Efimov effect for three identical bosons*, J. P. D'Incao and B. D. Esry, [Phys. Rev. A 72, 032710 \(2005\)](#)
- ³ *Scattering length scaling laws for ultracold three-body collisions*, J. P. D'Incao and B. D. Esry, [Phys. Rev. Lett. 94, 213201 \(2005\)](#)
- ² *Limits on universality in ultracold three-boson recombination*, J. P. D'Incao, H. Suno, and B. D. Esry, [Phys. Rev. Lett. 93, 123201 \(2004\)](#)
- ¹ *Hyperspherical angular adiabatic separation for three-electron systems*, J. P. D'Incao, [Phys. Rev. A 67, 024501 \(2003\)](#)

Invited Talks

- ³⁶ Multichannel nature of few-body interactions in ultracold atomic systems and chemical reactions, Kavli Institute for Theoretical Physics, Santa Barbara, CA, May 2022
- ³⁵ *Colloquium: A Microscopic Perspective of Ultracold Quantum Matter*, Rochester Institute of Technology (RIT), Rochester, NY, February 2022
- ³⁴ State-to-state chemistry in ultracold quantum gases: propensity rules and chaotic behavior, Congreso Nacional de Física de la Sociedad Mexicana de Física, Tijuana, Mexico, October 2021.

- 33 *Colloquium: A Few-body Perspective of Ultracold Quantum Matter*, Department of Physics, Institut fur Quantenmaterie, Ulm University, Germany, June 2019
- 32 Non-equilibrium dynamics with ultracold few-body systems, 6th IEA-USP international Workshop: The Physics of Cold and Ultracold Atomic Gases: Regular and Chaotic Aspects, Sao Paulo, Brazil, April 2019
- 31 (not attended) 7th International Workshop on Ultracold Group II Atoms, Beijing, China, September 2018.
- 30 A hyperspherical perspective of few-body physics, Kavli Institute for Theoretical Physics, Program: Universality in Few-body Systems, Santa Barbara, CA, October 2016
- 29 Few-body studies in microgravity, Science Concept Review, Cold Atom Laboratory, JPL/NASA, Pasadena CA, February 2016
- 28 *Colloquium: A few-body perspective of ultracold quantum matter*, Department of Physics, Washington State University, May 2015
- 27 Three-body physics in quenched unitary Bose gases, Institute for Nuclear Theory, Workshop: Universality in Few-Body Systems: Theoretical, Challenges and New Directions, Seattle, WA, March 2014.
- 26 Formation of triatomic Efimov states in unitary Bose gases, Workshop: Cold and Ultracold Molecules, Granada, Spain, October 2013
- 25 Efimov Physics with cold atoms and dipolar molecules, Kavli Institute for Theoretical Physics, Program: Fundamental science and applications of ultra-cold polar molecules, Santa Barbara, CA, February 2013.
- 24 Universal Few-body Physics in Ultracold Quantum Gases, RIKEN-Nishina Center for Accelerator-Based Science, Wako, Japan, August 2012
- 23 Efimov physics for atoms and dipolar ground state molecules, University of Tokyo, Physics Department, Tokyo, Japan, August 2012
- 22 Universal Few-body Physics in Strongly Interacting Ultracold Quantum Gases, University of Indiana University of Purdue, Physics Department, Indianapolis, IN, March 2012
- 21 The persistence of the attraction: the Efimov physics for atoms and dipolar molecules, The 42nd Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, 01/2012.
- 20 Few-body physics with ground state polar molecules, Center for Quantum Engineering and Space-Time Research (QUEST), Hannover, Germany, October 2011
- 19 The persistence of the attraction: the Efimov physics for atoms and dipolar molecules, University of Heidelberg, Heidelberg, Germany, October 2011
- 18 The persistence of the attraction: the dipolar Efimov effect, The Fifth Asia-Pacific Conference on Few-Body Problems in Physics, Seoul, South Korea, August 2011
- 17 Signatures of Universal four-bosons states, APS April Meeting, Anaheim, CA, April 2011.
- 16 *Colloquium: Few-body Physics in Ultracold Quantum Gases: from Efimov Physics to Controllable Chemical Reactions*, Dept. Physics, Oklahoma University, Norman, OK, March 2011.
- 15 *Colloquium: Few-body Physics in Ultracold Quantum Gases: from Efimov Physics to Controllable Chemical Reactions*, Dept. Physics, California State University, Long Beach, CA, February 2011.
- 14 Universality in Ultracold Gases: from Efimov physics to controllable chemical reactions, 30th CNLS Annual Conference: "Complexity and Disorder at ultra-low temperatures", Santa Fe, NW, June 2010.
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- 11 Weakly bound systems in atomic and nuclear physics, Institute for Nuclear Theory, University of Washington, Seattle, WA, March 2010.

- ¹⁰ Universal four-body resonances in ultracold atomic and molecular gases, Workshop "Efimov States in Molecules and Nuclei: Theoretical Methods and New Experiments", ITAMP, Harvard-Smithsonian Center for Astrophysics, and Lincei Academy, Corsini Palace, Rome, Italy, October 2009.
- ⁹ Few-Body Systems Nineteen Conference (not attended). Bonn, Germany, September 2009
- ⁸ Few-body correlations in ultracold quantum gases: the realm of Efimov physics, Kirchhoff-Institut für Physik, Max Planck Institut, Heidelberg, Germany, February 2009
- ⁷ Few-body phenomena with fermions: a mini-tutorial and some other thoughts, University of Innsbruck and Academy of Science, Innsbruck, Austria, February 2009
- ⁶ Few-body Physics in Ultracold Gases: The role of Efimov Physics. LENS, European Laboratory for Non-Linear Spectroscopy, Florence, Italy, October 2008
- ⁵ Few-body physics in ultracold gases: the role of Efimov physics. Ettore Majorana Foundation and Center for Science Culture, Erice, Italy, October 2008
- ⁴ The Emergence of an Universal Picture: the Heritage of Efimov Physics in the Four-boson Problem. University of Innsbruck and Academy of Science, Innsbruck, Austria, October 2008
- ³ *Colloquium*: Few-body physics in ultracold gases: the role of Efimov physics. Department of Physics, York University, Toronto, Canada, April 2008
- ² Ultracold three-body collisions and their influence on ultracold quantum gases. Hot Topic section of the APS Meeting of the Division of Atomic, Molecular, and Optical Physics, Knoxville, TN, May 2006.
- ¹ *Colloquium*: Studies of Positronic Atomic Systems in the Hyperspherical Adiabatic Representation. Atomic Physics Seminar Series, Physics Institute Gleb Wataghin, Campinas State University, Brazil, October 2002.