

Biographical Sketches

Alexei Bazavov
Assistant Professor
Michigan State University

Education and Training

Kiev State University, Kiev, Ukraine	Physics	B.S.	1992-1997
Florida State University, Tallahassee, FL	Physics	M.S.	2003-2005
Florida State University, Tallahassee, FL	Physics	Ph.D.	2003-2007

Research and Professional Experience

Assistant Professor	Michigan State University	2016 – present
Research Associate	Indiana University	2016
Research Associate	University of Iowa and University of California, Riverside	2013 – 2016
Research Associate	Brookhaven National Laboratory	2010 – 2013
Research Associate	University of Arizona	2007 – 2010
Junior Research Fellow	Bogolyubov Institute for Theoretical Physics, Kiev, Ukraine	1997 – 2002

Publications

88 total refereed publications; h-index = 35 (Google Scholar)

10 selected publications relevant to the present proposal:

1. Cloët, Ian C., Dietrich, Matthew R., Arrington, John, Bazavov, Alexei, Bishof, Michael, Freese, Adam, Gorshkov, Alexey V., Grassellino, Anna, Hafidi, Kawtar, Jacob, Zubin, McGuigan, Michael, Meurice, Yannick, Meziani, Zein-Eddine, Mueller, Peter, Muschik, Christine, Osborn, James, Otten, Matthew, Petreczky, Peter, Polakovic, Tomas, Poon, Alan, Pooser, Raphael, Roggero, Alessandro, Saffman, Mark, VanDevender, Brent, Zhang, Jiehang, Zohar, Erez, *Opportunities for Nuclear Physics & Quantum Information Science*, arXiv:1903.05453
2. Alexei Bazavov, Frithjof Karsch, Swagato Mukherjee, Peter Petreczky, *Hot-dense Lattice QCD: USQCD whitepaper 2018*, arXiv:1904.09951
3. Bazavov, A., Ding, H.-T., Hegde, P., Kaczmarek, O., Karsch, F., Karthik, N., Laermann, E., Lahiri, Anirban, Larsen, R., Li, S.-T., Mukherjee, Swagato, Ohno, H., Petreczky, P., Sandmeyer, H., Schmidt, C., Sharma, S., Steinbrecher, P., *Chiral crossover in QCD at zero and non-zero chemical potentials*, arXiv:1812.08235, accepted to Physics Letters B
4. Bazavov, Alexei, Meurice, Yannick, Tsai, Shan-Wen, Unmuth-Yockey, Judah, Zhang, Jin, *Gauge-invariant implementation of the Abelian Higgs model on optical lattices*, Phys.Rev. D92 (2015) no.7, 076003, arXiv:1503.08354
5. Bazavov, Alexei, Karsch, Frithjof, Maezawa, Yu, Mukherjee, Swagato, Petreczky, Peter, *In-medium modifications of open and hidden strange-charm mesons from spatial correlation functions*, Phys.Rev. D91 (2015) no.5, 054503, arXiv:1411.3018

Synergistic Activities

1. Referee for Phys. Rev. A, B, C, D, E, Letters, Physics Letters B, Nuclear Physics A

2. Organizer of International Symposium on Lattice Field Theory, 2018; ECT* workshop on heavy-ion physics, 2017; Extreme QCD, 2012; Workshop on Thermal Photons and Dileptons, 2011

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

Collaborators and Co-editors: Bailey, Jon (Seoul University); Bernard, Claude (Washington University); Bhattacharya, Tanmoy (Los Alamos National Laboratory); Bouchard, Chris (University of Glasgow); Brambilla, Nora (Technical University Munich); Brown, Nathan (Washington University); Burnier, Yannis (University of Lausanne); Christ, Norman (Columbia University); DeTar, Carleton (University of Utah); Ding, Heng-Tong (Central China Normal University); Du, Daping (Syracuse University); El-Khadra, Aida (University of Illinois); Freeland, Elizabeth (School of Art Institute of Chicago); Gamiz, Elvira (University of Granada); Gottlieb, Steven (Indiana University); Gupta, Rajan (Los Alamos National Laboratory); Heller, Urs (American Physical Society); Hegde, Prasad (Central China Normal University); Hetrick, Jim (University of the Pacific); Jung, Chulwoo (Brookhaven National Laboratory); Kaczmarek, Olaf (Bielefeld University); Karsch, Frithjof (Brookhaven National Laboratory); Komijani, Javad (Technical University Munich); Kronfeld, Andreas (Fermi National Laboratory); Laermann, Edwin (Bielefeld University); Laiho, Jack (Syracuse University); Levkova, Ludmila (NAUTO); Maezawa, Yu (Kyoto University); Mackenzie, Paul (Fermi National Laboratory); Mawhinney, Robert (Columbia University); Meurice, Yannick (University of Iowa); Monahan, Chris (Rutgers University); Mukherjee, Swagato (Brookhaven National Laboratory); Neil, Ethan (Colorado University); Ohno, Hiroshi (University of Tsukuba); Osborn, James (Argonne National Laboratory); Petreczky, Peter (Brookhaven National Laboratory); Primer, Tom (University of Arizona); Schmidt, Christian (Bielefeld University); Schroeder, Chris (Lawrence Livermore National Laboratory); Sharma, Sayantan (Brookhaven National Laboratory); Simone, Jim (Fermi National Laboratory); Soltz, Ron (Lawrence Livermore National Laboratory); Soeldner, Wolfgang (Regensburg University); Sugar, Robert (University of California, Santa Barbara); Toussaint, Doug (University of Arizona); Tsai, Shan-Wen (University of California, Riverside); Unmuth-Yockey, Judah (University of Iowa); Vairo, Antonio (Technical University Munich); Vranas, Pavlos (Lawrence Livermore National Laboratory); Wagner, Matthias (NVIDIA); Van de Water, Ruth (Fermi National Laboratory); Weber, Johannes (Technical University Munich); Zhou, Ran (Fermi National Laboratory);

Graduate and Postdoctoral Advisors and Advisees: Berg, Bernd (Florida State University; Ph.D. adviser); Toussaint, Doug (University of Arizona); Karsch, Frithjof (Brookhaven National Laboratory); Meurice, Yannick (University of Iowa); Tsai, Shan-Wen (University of California, Riverside); Gottlieb, Steven (Indiana University); Chuna, Thomas (Michigan State University, Ph.D. student); Hostetler, Leon (Michigan State University, Ph.D. student); Weber, Johannes (Michigan State University, postdoctoral associate)

Scott Bogner

NSCL/FRIB and Department of Physics & Astronomy,
Michigan State University, East Lansing, MI 48824
Phone: (517) 908-7433; Email: bogner@nscl.msu.edu

Education and Training

- SUNY Stony Brook, Physics: Ph.D., 2002
- University of Cincinnati, Nuclear Engineering: B.S., 1996

Research and Professional Experience

- *Professor*, NSCL and Dept. of Physics & Astronomy, Michigan State University, 2017–
- *Associate Professor*, NSCL and Dept. of Physics & Astronomy, Michigan State University, 2012–2017
- *Assistant Professor*, NSCL and Dept. of Physics & Astronomy, Michigan State University, 2007–2012
- *Research Associate*, The Ohio State University, 2004–2007
- *Research Associate*, Institute for Nuclear Theory, University of Washington, 2002–2004

Selected Publications Relevant to this Proposal

1. S. R. Stroberg, A. Calci, H. Hergert, J. D. Holt, S. K. Bogner, R. Roth, and A. Schwenk, [A Nucleus-Dependent Valence-Space Approach to Nuclear Structure](#), Phys. Rev. Lett. **118**, 032502 (2017).
2. H. Hergert, S. K. Bogner, T. D. Morris, A. Schwenk, K. Tsukiyama, [The In-Medium Similarity Renormalization Group: A New Ab Initio Method for Nuclei](#), Phys. Rept. **621**, 165 (2016).
3. H. Hergert, S. K. Bogner, T. D. Morris, S. Binder, A. Calci, J. Langhammer, and R. Roth, [Ab-Initio Multi-Reference In-Medium Similarity Renormalization Group Calculations of Calcium and Nickel Isotopes](#), Phys. Rev. C **90**, 041302(R) (2014).
4. S. König, S. K. Bogner, R. J. Furnstahl, S. N. More and T. Papenbrock, [Ultraviolet extrapolations in finite oscillator bases](#) Phys. Rev. C **90**, 064007 (2014).
5. S. R. Stroberg, H. Hergert, J. D. Holt, S. K. Bogner, A. Schwenk, [Ground and Excited States of Doubly Open-Shell Nuclei From Ab Initio Valence-Space Hamiltonians](#), Phys. Rev. C **93**, 051301(R) (2016).
6. S. K. Bogner, H. Hergert, J. D. Holt, A. Schwenk, S. Binder, A. Calci, J. Langhammer, and R. Roth, [Nonperturbative Shell-Model Interactions from the In-Medium Similarity Renormalization Group](#), Phys. Rev. Lett. **113**, 142501 (2014).
7. H. Hergert, S. K. Bogner, S. Binder, A. Calci, J. Langhammer, R. Roth, and A. Schwenk, [In-Medium Similarity Renormalization Group with Chiral Two- Plus Three-Nucleon Interactions](#), Phys. Rev. C **87**, 034307 (2013).

Selected Synergistic Activities

- *Co-organizer*: ICNT program on “Theory for open-shell nuclei near the limits of stability”, East Lansing, MI, May 11 - 29, 2015
- *Lecturer/Co-organizer*: TALENT summer school in “Nuclear Density Functional Theory and Self-Consistent Methods,” 2014 ECT* Trento (Italy)(UK) www.nucleartalent.org/
- *Co-Organizer*: INT Program on “Computational and Theoretical Advances for Exotic Isotopes in the Medium Mass Region”, Seattle, Washington, March 25 - April 19, 2013
- *Co-Organizer*: EMMI Program on “The Extreme Matter Physics of Nuclei: From Universal Properties to Neutron-Rich Extremes”, Darmstadt, Germany, April 16 - May 11, 2012

Coauthors (48 months) and Co-editors (24 months)

L. Caceres (GANIL), A. Calci (TRIUMF), R. J. Furnstahl (OSU), H. Hergert (NSCL/FRIB & U Oslo), M. Hjorth-Jensen (NSCL/FRIB & U Oslo), J. D. Holt (TRIUMF), S. More (NSCL/FRIB), T. D. Morris (UT

Knoxville/ORNL), T. Papenbrock (UT Knoxville/ORNL), N. Parzuchowski (NSCL/FRIB), R. Roth (TU Darmstadt), A. Schwenk (TU Darmstadt), O. Sorlin (GANIL), S. R. Stroberg (TRIUMF), K. Tsukiyama (Millennium Capital Management Asia Ltd.)

Advisors

- R. J. Furnstahl (OSU, Postdoctoral)
- W. Haxton (INT/UW, Postdoctoral)
- T. T. S. Kuo (Stony Brook, Doctoral)

Graduate/Postdoctoral Advisees

- Graduate students: N. Parzuchowski (Ph.D. 2017) T. Morris (Ph.D. 2016))
- Postdocs: H. Hergert(NSCL/FRIB) S. More (NSCL/FRIB)

Patrick Coles

EXPERIENCE

STAFF SCIENTIST

Los Alamos National Laboratory, T-4 division

2017 – Present, Los Alamos, NM, USA

Focus: Quantum Computing Algorithms

POSTDOCTORAL RESEARCHER

Institute for Quantum Computing,

University of Waterloo

2014 – 2017, Waterloo, Ontario, Canada

Advisor: Norbert Lutkenhaus

Focus: Quantum Cryptography and Computing

POSTDOCTORAL RESEARCHER

Centre for Quantum Technologies,

National University of Singapore

2012 – 2014, Singapore, Singapore

Advisor: Stephanie Wehner

Focus: Quantum Information Theory

POSTDOCTORAL RESEARCHER

Department of Physics,

Carnegie Mellon University

2008 – 2012, Pittsburgh, PA, USA

Advisor: Robert Griffiths

Focus: Quantum Foundations

EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY

Ph.D. Chemical Engineering

2002 – 2008, Berkeley, CA, USA

Thesis: Spin refrigeration in semiconductors

UNIVERSITY OF CAMBRIDGE

M.Phil. Biochemistry

Churchill Scholar (only 11 selected in USA)

2001 – 2002, Cambridge, United Kingdom

Thesis: 3D protein structure via NMR

CASE WESTERN RESERVE UNIVERSITY

B.S. Chemical Engineering

GPA: 4.0 (highest possible GPA)

1997 – 2001, Cleveland, OH, USA

ONLINE COURSE CERTIFICATES

Machine Learning, taught by Andrew Ng

Neural Networks, taught by Geoffrey Hinton

2016 – 2017, Coursera

<https://www.coursera.org/>

SYNERGISTIC ACTIVITIES

- School organizer for LANL Quantum Computing Summer School (2018, 2019)
- Adjunct Assistant Professor in Physics Department at University of New Mexico (2019-Present)

SELECTED PUBLICATIONS

- P. Coles, V. Katariya, S. Lloyd, I. Marvian, M. Wilde “Entropic energy-time uncertainty relation” *Physical Review Letters*. 122: 100401 (2019)
- Y. Subasi, L. Cincio, P. Coles “Entanglement spectroscopy with a depth-two quantum circuit” *Journal of Physics A: Mathematical and Theoretical*. 52: 044001 (2019)
- L. Cincio, Y. Subasi, A. Sornborger, P. Coles “Learning the quantum algorithm for state overlap” *New Journal of Physics*. 20:113022 (2018)
- A. Winick, N. Lutkenhaus, P. Coles “Reliable numerical key rates for quantum key distribution” *Quantum*. 2: 77 (2018)
- P. Coles, M. Berta, M. Tomamichel, S. Wehner “Entropic uncertainty relations and their applications” *Reviews of Modern Physics*. 89: 015002 (2017)
- P. Coles, E. Metodiev, N. Lütkenhaus “Numerical approach for unstructured quantum key

distribution" *Nature Communications*. 7: 11712 (2016)

- D. Soh, C. Brif, P. Coles, N. Lütkenhaus, R. Camacho, J. Urayama, M. Sarovar "Self-referenced continuous-variable QKD protocol" *Physical Review X*. 5: 041010 (2015)
- P. Coles, J. Kaniewski, S. Wehner "Equivalence of wave-particle duality to entropic uncertainty" *Nature Communications*. 5: 5814 (2014)
- P. Coles, M. Piani "Complementary sequential measurements generate entanglement" *Physical Review A: Rapid Communications*. 89: 010302(R) (2014), **Editors' Suggestion**
- P. Coles, R. Colbeck, L. Yu, M. Zwolak "Uncertainty relations from simple entropic properties" *Physical Review Letters*. 108: 210405 (2012)

Collaborators (in the past 48 months):

Sornborger, Andrew, Los Alamos National Laboratory; Subasi, Yigit, Los Alamos National Laboratory; Zurek, Wojciech, Los Alamos National Laboratory; Lütkenhaus, Norbert, University of Waterloo; Wehner, Stephanie, TU Delft; Tomamichel, Marco, University of Technology Sydney; Berta, Mario, Imperial College London; Wilde, Mark, Louisiana State University; Lloyd, Seth, MIT; Marvian, Iman, Duke University; Kaniewski, Jędrzej, Polish Academy of Sciences;

Graduate and Postdoctoral Advisors and Advisees:

Arrasmith, Andrew, UC Davis; Cerezo, Marco, Los Alamos National Laboratory;

Biographical Sketches

Heiko Hergert

Assistant Professor of Physics

Facility for Rare Isotope Beams and Dept. of Physics & Astronomy, Michigan State University

Education and Training

TU Darmstadt, Germany, Theoretical Nuclear Physics: Dr. rer. nat., 2004-2008

TU Darmstadt, Germany, Theoretical Nuclear Physics: Diplom, 2003-2004

Research and Professional Experience

Assistant Professor	FRIB and Dept. of Physics & Astronomy, MSU	2015-
FRIB Theory Fellow	FRIB, MSU	2014-2015
Postdoc	Dept. of Physics, The Ohio State University	2011-2014
Postdoc	NSCL, MSU	2009-2011
Postdoc	Institute for Nuclear Physics, TU Darmstadt	2008-2009

Publications

34 total refereed publications; 17 as 1st or 2nd author; h-index = 23 (Google Scholar), 21 (Publons/Web of Knowledge)

10 elected publications relevant to the present proposal:

1. “*Non-Empirical Interactions for the Nuclear Shell Model: An Update*”, S. R. Stroberg, H. Hergert, S. K. Bogner, J. D. Holt, Ann. Rev. Nucl. Part. Sci. 69, in press, arXiv: 1902.06154 [nucl-th]
2. “*Generator-coordinate reference states for spectra and $0\nu\beta\beta$ decay in the in-medium similarity renormalization group*”, J. M. Yao, J. Engel, L. J. Wang, C. F. Jiao, H. Hergert, Phys. Rev. C 98, 054311 (2018), arXiv: 1807.11053 [nucl-th]
3. “*Bogoliubov Many-Body Perturbation Theory for Open-Shell Nuclei*”, A. Tichai, P. Arthuis, T. Duguet, V. Somà, H. Hergert, R. Roth, Phys. Lett. B 786, 195 (2018), arXiv: 1806.10931 [nucl-th]
4. “*Ab Initio Electromagnetic Observables with the In-Medium Similarity Renormalization Group*”, N. M. Parzuchowski, S. R. Stroberg, P. Navrátil, H. Hergert, S. K. Bogner, Phys. Rev. C 96, 034324 (2017), arXiv: 1705.05511 [nucl-th]
5. “*Ab Initio Description of Open-Shell Nuclei: Merging No-Core Shell Model and In-Medium Similarity Renormalization Group*”, E. Gebrerufael, K. Vobig, H. Hergert, R. Roth, Phys. Rev. Lett. 118, 152503 (2017), arXiv: 1610.05254 [nucl-th]
6. “*In-Medium Similarity Renormalization Group for Closed- and Open-Shell Nuclei*”, H. Hergert, Phys. Scripta 92, 023002 (2017), arXiv: 1607.06882 [nucl-th]
7. “*A Nucleus-Dependent Valence-Space Approach to Nuclear Structure*”, S. R. Stroberg, A. Calci, H. Hergert, J. D. Holt, S. K. Bogner, R. Roth, and A. Schwenk, Phys. Rev. Lett. 118, 032502 (2017), arXiv: 1607.03229 [nucl-th]

8. “Ground and Excited States of Doubly Open-Shell Nuclei From Ab Initio Valence-Space Hamiltonians”, S. R. Stroberg, H. Hergert, J. D. Holt, S. K. Bogner, A. Schwenk, Phys. Rev. C 93, 051301(R) (2016), arXiv: 1511.02802 [nucl-th]
9. “The In-Medium Similarity Renormalization Group: A New Ab Initio Method for Nuclei”, H. Hergert, S. K. Bogner, T. D. Morris, A. Schwenk, K. Tsukiyama, Phys. Rept. 621, 165 (2016), arXiv: 1512.06956 [nucl-th]
10. “Ab-Initio Multi-Reference In-Medium Similarity Renormalization Group Calculations of Calcium and Nickel Isotopes”, H. Hergert, S. K. Bogner, T. D. Morris, S. Binder, A. Calci, J. Langhammer, and R. Roth, Phys. Rev. C 90, 041302(R) (2014), arXiv: 1408.6555 [nucl-th]

Synergistic Activities

1. *Co-Organizer*: Nuclear Structure 2018, East Lansing, MI, USA, Advances in Rare Isotope Science (ARIS) 2017, Keystone, CO, USA
2. *Co-Organizer/Instructor*: 2020 TALENT Course 4: DFT and Self-Consistent Methods (planned)
3. *Referee*: Ann. Phys., Eur. Phys. J. A, J. Phys. G, Nucl. Phys. A, Phys. Lett. B, Phys. Rev. C, Phys. Rev. Lett.
4. *Proposal Reviewer*: US Department of Energy
5. *Member*: SciDAC-4 NUCLEI Collab., DoE Double Beta Decay (DBD) Topical Collab.

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

Collaborators and Co-editors:

P. Arthuis (U Surrey), C. Barbieri (U Surrey), S. K. Bogner (NSCL/FRIB), B. A. Brown (NSCL/FRIB), A. Calci¹ (TRIUMF), T. Duguet (CEA Saclay), J. Engel (U North Carolina–Chapel Hill), K. Fosse (ANL & NSCL/FRIB), E. Gebrerufael¹ (TU Darmstadt), M. Hjorth-Jensen (NSCL/FRIB & U Oslo), J. D. Holt (TRIUMF), C. F. Jiao (San Diego State U), V. Lapoux (CEA Saclay), E. Leistenschneider (TRIUMF), T. D. Morris (U Tennessee–Knoxville & ORNL), P. Navrátil (TRIUMF), P. Papakonstantinou (IBS Daejeon), R. Roth (TU Darmstadt), A. Schwenk (TU Darmstadt), V. Somà (CEA Saclay), S. R. Stroberg (U Washington), A. Tichai (CEA Saclay), K. Tsukiyama¹ (CNS, U Tokyo), K. Vobig¹ (TU Darmstadt), L. J. Wang (U North Carolina–Chapel Hill), J. M. Yao (NSCL/FRIB)

¹ moved to industry

Graduate and Postdoctoral Advisors and Advisees:

Advisors: R. Roth (TU Darmstadt, graduate), S. K. Bogner (NSCL/FRIB, postdoctoral), R. J. Furnstahl (OSU, postdoctoral)

Postdocs Supervised: K. Fosse, R. Wirth, J. M. Yao

Graduate Students Supervised: J. Davison, J. Hill, B. Zhu

Matthew J. Hirn

Assistant Professor, Department of Computational Mathematics, Science and Engineering (CMSE)
Assistant Professor, Department of Mathematics
Michigan State University

EDUCATION AND TRAINING

Cornell University	Ithaca, NY	Mathematics	BA	2004
University of Maryland	College Park, MD	Mathematics	PhD	2009
Yale University	New Haven, CT	Applied Math.	Postdoc	2009-2013
Cornell University	Ithaca, NY	Mathematics	Visit. Asst. Prof.	2013
École Normale Supérieure	Paris, France	Computer Science	Postdoc	2013-2015

RESEARCH AND PROFESSIONAL EXPERIENCE

Assistant Professor of CMSE	Michigan State University	2015-Present
Assistant Professor of Mathematics	Michigan State University	2015-Present

PUBLICATIONS

Ten selected publications relevant to the present proposal:

- [1] Feng Gao, Guy Wolf, and Matthew Hirn. **Geometric Scattering for Graph Data Analysis**. To appear in the *36th International Conference on Machine Learning*, 2019.
- [2] Xavier Brumwell, Paul Sinz, Kwang Jin Kim, Yue Qi, and Matthew Hirn. **Steerable Wavelet Scattering for 3D Atomic Systems with Application to Li-Si Energy Prediction**. In *NeurIPS Workshop on Machine Learning for Molecules and Materials*, Montreal, Canada, 2018.
- [3] Michael Eickenberg, Georgios Exarchakis, Matthew Hirn, Stéphane Mallat, and Louis Thiry. **Solid Harmonic Wavelet Scattering for Predictions of Molecule Properties**. *The Journal of Chemical Physics* (Editor’s Pick), vol. 148, 241732, 2018.
- [4] Nicholas F. Marshall and Matthew J. Hirn. **Time Coupled Diffusion Maps**. *Applied and Computational Harmonic Analysis*, vol. 45, no. 3, pp. 709–728, 2018.
- [5] Michael Eickenberg, Georgios Exarchakis, Matthew Hirn, and Stéphane Mallat. **Solid Harmonic Wavelet Scattering: Predicting Quantum Molecular Energy from Invariant Descriptors of 3D Electronic Densities**. In *Advances in Neural Information Processing Systems 30*, pp. 6543–6552, 2017.
- [6] Matthew J. Hirn, Nicolas Poilvert, and Stéphane Mallat. **Wavelet scattering regression of quantum chemical energies**. *Multiscale Modeling and Simulation*, vol. 15, no. 2, pp. 827–863, 2017.
- [7] Ariel Herbert-Voss, Matthew J. Hirn, and Frederick McCollum. **Computing minimal interpolants in $C^{1,1}(\mathbb{R}^d)$** . *Revista Matemática Iberoamericana*, vol. 33, no. 1, pp. 29–66, 2017.
- [8] Ronald R. Coifman and Matthew J. Hirn. **Diffusion maps for changing data**. *Applied and Computational Harmonic Analysis*, vol. 36, no. 1, pp. 79–107, 2014.
- [9] Matthew J. Hirn and Erwan Le Gruyer. **A general theorem of existence of quasi absolutely minimal Lipschitz extensions**. *Mathematische Annalen*, vol. 359, no. 3-4, pp. 595–628, 2014.
- [10] Ronald R. Coifman and Matthew J. Hirn. **Bi-stochastic kernels via asymmetric affinity functions**. *Applied and Computational Harmonic Analysis*, vol. 35, no. 1, pp. 177–180, 2013.

SYNERGISTIC ACTIVITIES

1. Undergraduate, Graduate, and Postdoc Education

- Directed an NSF REU on *Machine Learning from Quantum Computing* at MSU (Summer 2018), and an NSF REU on *High Dimensional Data Analysis* at Cornell (Summer, 2013).
- Chair of the Undergraduate Studies Committee for the CMSE Department (2017 – Present), during which time the department developed (with the Departments of Computer Science and Statistics) and undergraduate degree in *Data Science*.
- Scientific leader of the **ComplEx Data Analysis Research (CEDAR)** team, whose current members include five graduate students and three postdocs.
- Developed two new graduate courses, *Mathematical Foundations of Data Science* and *Computational Harmonic Analysis and Data Science*. Currently developing a third new graduate course, *Mathematical Foundations of Deep Learning*, which will run in the Spring 2020 semester.

2. Conference and Seminar Organization

- Co-organizer of the *Machine Learning Applied to Nuclear Physics Summer School* at the Facility for Rare Isotope Beams (May 20-23, 2019).
- Organized session on *Kernel Learning and Harmonic Analysis* for the Culminating Workshop of the IPAM program on Understanding Many-Particle Systems with Machine Learning (Dec 13, 2016).
- Co-organizer of the 8th *Whitney Problems Workshop* at CIRM (Oct 19-23, 2015).

3. Referee Work

- **Journals:** Applied and Computational Harmonic Analysis, European Journal of Operational Research, IEEE Signal Processing Letters, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Information Theory, International Conference on Machine Learning, International Journal of Quantum Chemistry, Linear Algebra and Its Applications, Neural Computation, NPJ Computational Materials, Proceedings of the American Mathematical Society, SIAM Journal on Applied Dynamical Systems, Signal Processing.
- **Agencies:** DOE, NSF/NIH.

IDENTIFICATION OF POTENTIAL CONFLICTS OF INTEREST

Collaborators and Co-editors: Andén, Joakim (Flatiron Institute); Andreux, Mathieu (ENS-Paris); Angles, Tomás (ENS-Paris); Belilovsky, Eugene (Université de Montréal); Bruna, Joan (New York University); Burkhardt, Daniel (Yale University); Cella, Carmine (UC Berkeley); Chen, William (Yale University); Eickenberg, Michael (UC Berkeley); Exarchakis, Georgios (institut de la vision); Gustafson, Adam (University of Washington-Seattle); Herbert-Voss, Ariel (Harvard University); Ivanova, Natalia (Yale University); Iwen, Mark (Michigan State University); Kim, Kwang Jin (Michigan State University); Krishnaswamy, Smita (Yale University); Le Gruyer, Erwan (INSA-Rennes); Leonarduzzi, Roberto (ENS-Paris); Lostanlen, Vincent (New York University); Marshall, Nicholas (Yale University); McCollum, Frederick (New York University); Mohammed, Kitty (University of Washington-Seattle); Moon, Kevin (Utah State University); Narayanan, Hariharan (TIFR-Mumbai); Oyallon, Edouard (Centrale Supélec); Poilvert, Nicolas (Baylabs); Qi, Yue (Michigan State University); Rochette, Gaspar (ENS-Paris); Thiry, Louis (ENS-Paris); van den Elzen, Antonia (Yale University); van Dijk, David (Yale University); Wang, Zheng (Yale University); Welp, Tobias (Yale University); Wolf, Guy (Université de Montréal); Xie, Yuying (Michigan State University); Xu, Jason (Duke University); Zarka, John (ENS-Paris); Zhang, Sixhin (Peking University).

Graduate and Postdoctoral Advisors and Advisees: Benedetto, John (University of Maryland-College Park); Brugnone, Nathan (Michigan State University); Brumwell, Xavier (Michigan State University); Coifman, Ronald (Yale University); Gao, Feng (Michigan State University); He, Jieqian (Michigan State University); LaRose, Ryan (Michigan State University); Little, Anna (Michigan State University); Mallat, Stéphane (College de France); Okoudjou, Kasso (University of Maryland-College Park); Perlmutter, Michael (Michigan State University); Sinz, Paul (Michigan State University).

Biographical Sketch for Morten Hjorth-Jensen

Education and Training:

Institution	Major/Title	Degree	Date
Norwegian University of Science and Technology, Trondheim, Norway	Physics	MSc	1983-1988
University of Oslo, Norway	Physics	PhD	1988-1993
ECT*, Trento, Italy	Postdoctoral Researcher		1994-1996
Nordita, Copenhagen, Denmark	Postdoctoral Researcher		1996-1998

Professional positions:

Position	Institution	Date
Associate Professor of Physics	University of Oslo, Norway	1999-2001
Professor of Physics	University of Oslo, Norway	2001-present
Adjunct Professor	Michigan State University/NSCL	2003-2011
Professor of Physics	Michigan State University/NSCL	2012-present
Principal investigator	Center of Mathematics for Applications, University of Oslo	2003-2013
Principal investigator	Center for Computing in Science Education, University of Oslo	2016-present

Awards and Recognitions:

Award	Date
University of Oslo award for excellence in teaching	2000
Fellow of the American Physical Society	2007
Oak Ridge National Laboratory excellence in research award	2008
Outstanding referee award of the American Physical Society	2008
University of Oslo award for excellence in teaching	2011
NOKUT (National award, Norway) award for excellence in teaching	2012
Elected member of the Norwegian Academy of Sciences and Letters	2013
Elected member of the Royal Norwegian Society of Sciences and Letters	2015
University of Oslo award for excellence in teaching for developing the Computational Physics group	2015
Olav Thon Foundation National prize for excellence in teaching award (National, Norway)	2018

Publications: 147 total refereed publications; h-index = 47 (Web of Science/Publons <https://publons.com/researcher/1751939/morten-hjorth-jensen/>). Ten publications relevant for the present proposal

1. M. Hjorth-Jensen, M. P. Lombardo, and U. van Kolck (Editors), *An Advanced Course in Computational Nuclear Physics; Bridging the Scales from Quarks to Neutron Stars*, Lecture Notes in Physics **936**, 2017
2. G. Hagen, A. Ekström, C. Forssén, G. R. Jansen, W. Nazarewicz, T. Papenbrock, K. A. Wendt, S. Bacca, N. Barnea, B. Carlsson, C. Drischler, K. Hebeler, M. Hjorth-Jensen, M. Miorelli, G. Orlandini, A. Schwenk, and J. Simonis, *Charge, neutron, and weak size of the atomic nucleus*, Nature Physics **12**, 186 (2016).
3. A. Ekström, G. R. Jansen, K. A. Wendt, G. Hagen, T. Papenbrock, B. D. Carlsson, C. Forssén, M. Hjorth-Jensen, P. Navratil, W. Nazarewicz, *Accurate nuclear radii and binding energies from a chiral interaction*, Physical Review C **91**, 051301(R) (2015).
4. G. Hagen, T. Papenbrock, A. Ekstrom, G. Baardsen, S. Gandolfi, K. A. Wendt, M. Hjorth-Jensen, and C. Horowitz, *Coupled-cluster calculations of nucleonic matter*, Physical Review C **89**, 014319 (2014).
5. T. Papenbrock, G. Hagen, M. Hjorth-Jensen, and D. J. Dean, *Coupled-cluster computations of atomic nuclei*, Reports on Progress in Physics **77**, 096302 (2014).
6. A. Ekström, G. Baardsen, C. Forssén, G. Hagen, M. Hjorth-Jensen, G. Jansen, R. Machleidt, W. Nazarewicz, T. Papenbrock, J. Sarich, and S. Wild, *Optimized Chiral Nucleon-Nucleon Interaction at Next-to-Next-to-Leading Order*, Physical Review Letters **110**, 192502 (2013).
7. K. Kowalski, D. J. Dean, M. Hjorth-Jensen, T. Papenbrock, and P. Piecuch, *Coupled cluster calculations of ground and excited states of nuclei*, Physical Review Letters **92**, 132501 (2004).
8. D. J. Dean and M. Hjorth-Jensen, *Pairing in nuclear systems: from neutron stars to finite nuclei*, Reviews of Modern Physics **75**, 607 (2003).
9. H. Heiselberg and M. Hjorth-Jensen, *Phases of dense matter in neutron stars*, Physics Reports **328**, 237 (2000).

10. M. Hjorth-Jensen, T. T. S. Kuo, and E. Osnes, *Realistic effective interactions for nuclear systems*, Physics Reports **261**, 125 (1995).

In addition I have recently finalized two textbooks on Computational Physics (one introductory and one advanced) to be published in 2019 by the Institute of Physics Publishing (IOP), UK.

Synergistic Activities

1. With colleagues at Michigan State University and Oak Ridge National Laboratory we have established a long-term activity on Computational quantum mechanics with main applications to nuclear physics and solid state physics problems. This research activity includes development of many-body theories, quantum mechanical many-body algorithms and high-performance computing activities.
2. With colleagues from the USA and other European countries, we started the Nuclear Talent initiative in 2010, see www.nucleartalent.org, where the main aim is provide an advanced and comprehensive training to graduate students and young researchers in low-energy nuclear theory. The network aims at developing a broad curriculum that will provide the platform for a cutting-edge theory for understanding nuclei and nuclear reactions. The Nuclear Talent initiative has been highly welcomed by the Nuclear Physics community. In the period 2012-2016 we have organized 11 advanced courses, with one more to be held in 2017. We have had almost 40 applicants per course on average. I have developed and taught two of the courses and been an organizer at two other courses, as well as being a teacher and main organizer at a course in 2017 on the nuclear shell model.
3. Since 1999 I have established an activity in computational physics at the Department of Physics at the University of Oslo. In 2015 this activity was rewarded with the University of Oslo award on excellency in teaching. I have also started from scratch and developed several courses on computational physics and many-body physics, courses I teach both at Michigan State University and at the University of Oslo. My research deals with various many-body methods and their computational aspects, with an emphasis on applications to the nuclear many-body problem.
4. With colleagues at the University of Oslo, I have been strongly involved in revising the way we teach our science courses by including computations in physics and mathematics course from the first semester of studies. This project is called 'Computing in Science Education' and has received considerable support from the University of Oslo and the Norwegian Ministry of research and education. This activity was newly awarded as a Norwegian Center of Excellency in Education. The newly established Center of Computing in Science Education has also strong links with Michigan State University and Professor Danny Caballero, whom I collaborate with on similar projects.

Identification of Potential Conflicts of Interest or Bias in Selection of Reviewers: Collaborators and Co-editors

I collaborate with Scott Bogner, Alex Brown, Heiko Hergert, Witek Nazarewicz and Andrea Shindler at Michigan State University, David Dean, Gaute Hagen, Gustav Jansen, Sam Novario and Thomas Papenbrock at University of Tennessee and Oak Ridge National Laboratory, Wick Haxton at Berkeley, Mihai Horoi at Central Michigan University, Ubirajara van Kolck at University of Arizona, Maria Paola Lombardo at INFN, Frascati, Italy, Christian Forssen and Andreas Ekström at Chalmers, Sweden, Carlo Barbieri at Surrey, UK, Francesco Pederiva at University of Trento, Takaharu Otsuka, Naofumi Tsunoda and Kazuo Takayanagi at Tokyo University, Japan, and Artur Polls at the University of Barcelona, Spain. On Computing in Science education I collaborate with Professor Danny Caballero at Michigan State University. **Graduate and Postdoctoral Advisors** Eivind Osnes (University of Oslo, Norway, PhD advisor), Ben Mottelson (ECT*, postdoctoral advisor) **Thesis Advisor and**

Postgraduate-Scholar Sponsor (2014-2019) *Graduate and Post-doctoral Advisees:* Gustav Baardsen (PhD UiO, Oslo), Gustav Jansen (PhD UiO, now ORNL), Torquil McDonald Sørenssen (PhD UiO, Oslo), Justin Lietz (PhD MSU), Sam Novario (PhD MSU), Fei Yuang (PhD MSU), Andreas Ekström (UiO and MSU, now at Chalmers, Sweden), Simen Kvaal (UiO), Sølve Selstø (UiO) Nicolas Michel (MSU, now Lanzhou China).

Biographical Sketch

Dean Lee

Education and Training

Harvard University, Cambridge, MA	Physics	A.B.	1988-1992
Harvard University, Cambridge, MA	Physics	Ph.D.	1992-1998

Research and Professional Experience

Professor	FRIB, Michigan State University	2017-present
Professor	North Carolina State University	2012-2017
Associate Professor	North Carolina State University	2007-2012
Assistant Professor	North Carolina State University	2001-2007
Postdoctoral Researcher	University of Massachusetts Amherst	1998-2001

Honors and Awards

American Physical Society Fellow, 2014
Alumni Distinguished Undergraduate Professor Award, NCSU, 2013
Outstanding Teaching Award, NCSU, 2007
Apker Award, American Physical Society, 1991

Products

Most Related to this Proposal

1. D. Lee, J. Watkins, D. Frame, G. Given, R. He, N. Li, B.-N. Lu, A. Sarkar, “Time fractals and discrete scale invariance with trapped ions, arXiv:1901.01661.
2. D. Frame, R. He, I. Ipsen, Da. Lee, De. Lee, E. Rrapaj, “Eigenvector continuation with subspace learning”, Phys. Rev. Lett. **121** 032501 (2018).
3. A. Rokash, E. Epelbaum, H. Krebs and D. Lee, “Effective forces between quantum bound states,” Phys. Rev. Lett. **118**, 232502 (2017).
4. S. Elhatisari, N. Li, A. Rokash, J. M. Alarcon, D. Du, N. Klein, B.-N. Lu, U.-G. Meißner, E. Epelbaum, H. Krebs, T. A. Lähde, D. Lee, G. Rupak, “Nuclear binding near a quantum phase transition,” Phys. Rev. Lett. **117**, 132501 (2016).
5. S. Elhatisari, D. Lee, G. Rupak, E. Epelbaum, H. Krebs, T. A. Lähde, T. Luu and U.-G. Meißner, “*Ab initio* alpha-alpha scattering,” Nature **528**, 111 (2015).

Five Other Products

1. S. Elhatisari, E. Epelbaum, H. Krebs, T. A. Lähde, D. Lee, N. Li, B.-N. Lu, U.-G. Meißner and G. Rupak, “*Ab initio* calculations of the isotopic dependence of nuclear clustering,” Phys. Rev. Lett. **119**, 222505 (2017).
2. E. Epelbaum, H. Krebs, T. A. Lähde, D. Lee, U.-G. Meißner and G. Rupak, “*Ab Initio* Calculation of the Spectrum and Structure of ^{16}O ,” Phys. Rev. Lett. **112**, 102501 (2014).

3. G. Rupak and D. Lee, “Radiative capture reactions in lattice effective field theory,” Phys. Rev. Lett. **111**, no. 3, 032502 (2013).
4. E. Epelbaum, H. Krebs, T. A. Lähde, D. Lee and U.-G. Meißner, “Viability of Carbon-Based Life as a Function of the Light Quark Mass,” Phys. Rev. Lett. **110**, 112502 (2013).
5. E. Epelbaum, H. Krebs, T. A. Lähde, D. Lee and U.-G. Meißner, “Structure and rotations of the Hoyle state,” Phys. Rev. Lett. **109**, 252501 (2012).

Synergistic Activities

1. Scientific advisor to the Quantum Information Science Workshop at Michigan State University (2018)
2. Founder and organizer of the Advanced Studies Gateway at FRIB (2018-present)
3. Co-organizer of Mainz Institute for Theoretical Physics Workshop on Progress in Diagrammatic Monte Carlo Methods for Quantum Field Theories in Particle-, Nuclear-, and Condensed Matter Physics” (2017)
4. Co-organizer of Institute for Nuclear Theory Program “Toward Predictive Theories of Nuclear Reactions Across the Isotopic Chart” (2017)
5. Chair/Chair-Elect/Vice Chair APS Topical Group on Few-Body Systems and Multiparticle Dynamics (2016-present)

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

Collaborators and Co-editors

Jose Manuel Alarcón (Universidad Complutense de Madrid), Martin Freer (University of Birmingham), Hans-Werner Hammer (Technical University of Darmstadt), Hisashi Horiuchi (Osaka University), Yoshiko Kanada-En’yo (Kyoto University), Nico Klein (University of Bonn), Timo Lähde (Forschungszentrum Jülich), Thomas Luu (Forschungszentrum Jülich / University of Bonn), Ulf-G. Meißner (University of Bonn / Forschungszentrum Jülich), Gautam Rupak (Mississippi State University)

Graduate and Postdoctoral Advisors

Howard Georgi (Harvard University), John Donoghue (University of Massachusetts Amherst), Eugene Golowich (University of Massachusetts Amherst), Barry Holstein (University of Massachusetts Amherst)

Graduate and Postdoctoral Advisees

Joey Bonitati (Michigan State University), Serdar Elhatisari (Karamanoglu Mehmetbey University), Dillon Frame (Michigan State University), Gabriel Given (Michigan State University), Rongzheng He (Michigan State University), Caleb Hicks (Michigan State University), Ning Li (Michigan State University), Bing-Nan Lu (Michigan State University), Avik Sarkar (Michigan State University), Richard Thomson (Alcatel), Jacob Watkins (Michigan State University)

Biographical Sketch

Huey-Wen Lin
Assistant Professor
Michigan State University

Education and Training

National Taiwan University, Taiwan	Physics	B.S.	1995-1999
Columbia University, New York, New York	Physics	Ph.D.	2000-2006

Research and Professional Experience

Assistant Professor	Physics/CMSE, Michigan State University	2016-present
Visiting Assistant Professor	University of California, Berkeley	2016-2015
Research Assistant Professor	University of Washington, Seattle	2009-2014
Postdoctoral Fellow	Jefferson Lab, Newport News	2006-2009

Publications

68 total refereed publications; h-index = 43 (Google Scholar)

10 selected publications relevant to the present proposal:

1. “Parton distributions and lattice QCD calculations: a community white paper”, Huey-Wen Lin et al, **Prog. Part. Nucl. Phys.** 100 (2018) 107-160 (*Impact Factor* 11.229)
2. “First Monte Carlo Global analysis of Nucleon Transversity with Lattice QCD Constraints”, H.-W. Lin, W. Melnitchouk, A. Prokudin, N. Sato, H. Shows, **Phys. Rev. Lett.** 120 (2018) no.15, 152502
3. “Proton Isovector Helicity Distribution on the Lattice at Physical Pion Mass”, H.-W. Lin, J.-W. Chen, L. Jin, Y.-S. Liu, Y. Yang, J. Zhang, Y. Zhao, **Phys. Rev. Lett.** 121, 242003 (2018).
4. “Gluon Quasi-PDF from Lattice QCD”, Zhou-You Fan, Yi-Bo Yang, Adam Anthony, Huey-Wen Lin, Keh-Fei Liu, arXiv:1808.02077 [hep-lat], **Phys. Rev. Lett.** 121, 242001 (2018).
5. “Neutron Electric Dipole Moment and Tensor Charges from Lattice QCD”, T. Bhattacharya, V. Cirigliano, R. Gupta, H.-W. Lin, B. Yoon, **Phys. Rev. Lett.** 115, 212002 (2015).
6. “Helicity and Transversity Parton Distribution from Lattice QCD”, Jiunn-Wei Chen, Xiangdong Ji, Huey-Wen Lin, and Jian-Hui Zhang, invited **Frontier Article**, Nucl.Phys. B911 (2016) 246
7. “Nuclear σ -terms and Scalar-Isoscalar WIMP-Nucleus Interactions from Lattice QCD”, S.R. Beane, S.D. Cohen, W. Detmold, H.-W. Lin, M.J. Savage, Phys. Rev. D 89, 074505 (2014)
8. “Magnetic moments of light nuclei from lattice quantum chromodynamics”, S.R. Beane, E. Chang, S. Cohen, W. Detmold, H.-W. Lin, K. Orginos, A. Parreno, M.J. Savage, B.C. Tiburzi, **Phys. Rev. Lett.** 113, 252001 (2014)
9. “Hyperon-Nucleon Interactions and the Composition of Dense Nuclear Matter from Quantum Chromodynamics”, S. Beane, E. Chang, S.D. Cohen, W. Detmold, H.-W. Lin, T. Luu, A. Parreno, K. Orginos, M. Savage, A. Torok, A. Walker-Loud, **Phys. Rev. Lett.** 109, 172001

10. Evidence for a Bound H-dibaryon from Lattice QCD”, S. Beane, E. Chang, W. Detmold, H.-W. Lin, T. Luu, A. Parreno, K. Orginos, M. Savage, A. Torok, A. Walker-Loud, *Phys. Rev. Lett.* 106, 162001

Synergistic Activities

1. Elected Chair of Gordon Research Conference on Photonuclear Reactions (2020)
2. Member, International Advisory Committee for the 37th International Symposium on Lattice Field Theory (Lattice 2019)
3. Chair for the 36th International Symposium on Lattice Field Theory, Jul. 22–28, 2018, Michigan State University, East Lansing, MI, USA
4. Initiator and co-organizer for first Workshop on *Parton Distributions and Lattice Calculations in the LHC era*, Mar. 22–24, 2017, Oxford, UK
5. Lead organizer for INT program on *Intersections of BSM Phenomenology and QCD for New-Physics Search*, Institute for Nuclear Theory, Seattle, WA, Fall 2015

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

Collaborators and Co-editors

T. Bhattacharya (LANL), J.-W. Chen (National Taiwan U.), Vincenzo Cirigliano (LANL), W. Detmold (MIT), R. Gupta (LANL), X. Ji (Shanghai Jiaotong U. & Maryland U.), K.F. Liu (Kentucky U.), K. Orginos (JLab & William-Mary Coll.), D. Richard (JLab), M.J. Savage (INT), Y. Yang (ITP, China), B. Yoon (LANL)

Graduate and Postdoctoral Advisors

Norman Chris (Columbia University), David Richard (JLab)

Graduate and Postdoctoral Advisees

Yi-Bo Yang (ITP, China), Daniel Bolton (U. Colorado), Raul Briceno (ODU)

Biographical Sketches

Andrea Shindler
Associate Professor
FRIB – Michigan State University

Education and Training

University of Rome “Tor Vergata”, Department of Physics Rome, Italy M.Sc. 1997-1998
University of Rome “Tor Vergata”, Department of Physics Rome, Italy Ph.D. 1998-2002
Italian Professor Habilitation 2014

Research and Professional Experience

Associate Professor MSU 2016 - present
Postdoctoral Fellow Forschungszentrum Jülich 2013 – 2016
Heisenberg Fellow CERN – Humboldt University Berlin 2010 – 2013
Postdoctoral CSIC fellowship CERN - Universidad Autonoma Madrid 2009 – 2010
Research Associate University of Liverpool 2007 - 2009
Research Associate NIC/DESY Zeuthen 2002 - 2007

Publications

41 total refereed publications; Total number of citations 2796; 100+ papers: 13; 50-100 papers: 6 h-index = 30

10 elected publications relevant to the present proposal:

1. “Confirming the Existence of the strong CP Problem in Lattice QCD with the Gradient Flow”
J. Dragos, T. Luu, A. Shindler, J. de Vries, A. Yousif
Feb 8, 2019. 49 pp. e-Print: arXiv:1902.03254 [hep-lat]
2. “Three neutrons from Lattice QCD”
J.-L. Wytten, E. Berkowitz, T. Luu, A. Shindler, J. Bulava
Oct 30, 2018. 7 pp. Conference: C18-07-22. e-Print: arXiv: 1810.12747 [hep-lat]
3. “Massive photons: an infrared regularization scheme for lattice QCD+QED”
M. G. Endres, A. Shindler, B. C. Tiburzi, A. Walker-Loud
Phys.Rev.Lett. 117 (2016) no.7, 072002; e-Print: arXiv:1507.08916 [hep-lat]
4. “Nucleon electric dipole moment with the gradient flow: the θ -term contribution”
A. Shindler, T. Luu, J. de Vries
Phys.Rev. D92 (2015) no.9, 094518; e-Print: arXiv: 1507.02343 [hep-lat]
5. “Computation of the chiral condensate using $N_f = 2$ and $N_f=2+1+1$ dynamical flavors of twisted mass fermions”
Krzysztof Cichy, Elena Garcia-Ramos, Karl Jansen, Andrea Shindler
PoS LATTICE2013 (2014) 128; e-Print: arXiv: 1312.3534
6. “The epsilon regime with twisted mass Wilson fermions”
Oliver Bär, Silvia Necco, Andrea Shindler
JHEP 1004 (2010) 053; e-Print: arXiv: 1002.1582 [hep-lat]
7. “Light Baryon masses with dynamical twisted mass fermions”
..., P. Dimopoulos,..., R. Frezzotti,..., G. Herdoiza, K. Jansen,..., Christopher Michael,..., A. Shindler, C. Urbach, U. Wenger
Phys. Rev. D78 (2008) 014509; e-print: arXiv:0803.3190 [hep-lat]

8. "Twisted mass lattice QCD"
Andrea Shindler
Phys. Rept. 461 (2008) 37-110; e-print: arXiv:0707.4093
9. "Iterative methods for overlap and twisted mass fermions"
T. Chiarappa, K. Jansen, K.-I. Nagai, M. Papinutto, L. Scorzato, A. Shindler, C. Urbach, U. Wenger, I. Wetzorke
Comput. Sci. Dis. 1 (2008) 015001; e-print: hep-lat/0609023
10. "Twisted mass quarks and the phase structure of lattice QCD"
F. Farchioni, R. Frezzotti, K. Jansen, I. Montvay, G.C. Rossi, E. Scholz, A. Shindler, N. Ukita, C. Urbach, I. Wetzorke
Eur. Phys. J. C39 (2005) 421-433; e-print: hep-lat/0406039

Synergistic Activities

1. Coordinator lecturer and organizer of the Nuclear TALENT School "From Quarks and Gluons to Nuclear Forces and Structure"
2. Main organizer of the FRIB-TA Topical Program "Hadronic Electric Dipole Moments in the FRIB Era: from the Proton to Protoactinium"
3. Organizer of the "The 36th International Symposium on Lattice Field Theory" July 2018
4. Honors Research Seminar for undergraduates affiliated with the Honors College Fall 2017
5. Referee for JHEP (Impact factor: 6.220), Physics Letters B (Impact factor: 6.019), Physical Review D (Impact factor: 4.864), Nuclear Physics B (Impact factor: 3.946), JETP Letters (Impact factor: 1.364)

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

Collaborators and Co-editors: Berkowitz, Evan (Forschungszentrum Jülich); Bulava, John (Southern Denmark University); Bussone, Andrea (University Autonoma of Madrid); de Vries, Jordy (University of Massachusetts); Dimopoulos, Petros (University of Rome "Roma Tre"); Dragos, Jack (Michigan State University); Endres, Michael G. (former MIT); Frezzotti, Roberto (University of Rome "Tor Vergata"); Gimenez, Vicente (University of Valencia-CSIC); Herdoiza, Gregorio (University Autonoma of Madrid); Kim, Jangho (Goethe University Frankfurt); Lubicz, Vittorio (University of Rome "Roma Tre"); Luu, Thomas (Forschungszentrum Jülich); Monahan, Christopher (University of Washington); Reyes, Jose G. (Michigan State University); Rossi, Gian Carlo (University of Rome "Tor Vergata"); Simula, Silvano (University of Rome "Roma Tre"); Tarantino, Cecilia (University of Rome "Roma Tre"); Tiburzi, Brian C. (The City College of New York); Walker-Loud, Andre (Lawrence Berkeley National Laboratory); Wynen, Jan-Lukas (Forschungszentrum Jülich); Yousif, Ahmed (Michigan State University)

Graduate and Postdoctoral Advisors and Advisees: Petronzio, Roberto (University of Rome 2 "Tor Vergata"); Garcia Ramos, Elena (Humboldt University/DESY-Zeuthen); Gonzalez Lopez, Jenifer (Humboldt University/DESY-Zeuthen); Urbach, Carsten (Frei University/DESY-Zeuthen); Rizik, Matthew D. (Michigan State University); Pederiva, Giovanni (Michigan State University)