Biographical Sketch for Morten Hjorth-Jensen

Facility For Rare Ion Beams and Department of Physics and Astronomy, Michigan State University, East Lansing, MI 48824, USA.

http://mhjgit.github.io/info/doc/web/

Education and training:

Norwegian Univ. of Science & Technology, Trondheim, Norway	Physics	M.S.	1983-1988
University of Oslo, Norway	Physics	Ph.D.	1988-1993
ECT*, Trento, Italy	Postdoctoral		1994-1996
Nordita, Copenhagen, Denmark	Postdoctoral		1996-1998

Research and professional experience:

2016-present	Co-Investigator, Center for Computing in Science Education, University of Oslo, Norway
2012-present	Professor of Physics, Michigan State University/NSCL
2001-present	Professor of Physics, University of Oslo, Norway
1999-2001	Associate Professor of Physics, University of Oslo, Norway
2003-2011	Adjunct Professor, Michigan State University/NSCL
2003-2013	Co-Investigator, Center for Mathematics for Applications, University of Oslo, Norway
2004-2005	Visiting Professor, Isolde/CERN, Switzerland

Awards, Honors:

1. 2000, University of Oslo award for excellence in teaching
2. 2007, Fellow of the American Physical Society
3. 2008, Oak Ridge National laboratory excellence in research award
4. 2011, University of Oslo award for excellence in teaching
5. 2012, NOKUT (Norwegian entity of quality assessment in higher education) award for excellence in teaching
6. 2013, Elected member of the Norwegian Academy of Sciences and Letters
7. 2015, Elected member of the Royal Norwegian Society of Sciences and Letters
8. 2015, University of Oslo award for excellence in teaching
9. 2018, Osborne award for excellence in teaching, Michigan State University
10. 2018, **Olav Thon Foundation** National prize for excellence in teaching award (National, all Norwegian higher education institutions)
11. 2020, University of Oslo merited teacher award
12. 2021, College of Natural Science Normal and Olga Fritz excellence in teaching award, Michigan State University

Ten publications relevant for the present proposal

1. Amber Boehnlein, Markus Diefenthaler, Cristiano Fanelli, Morten Hjorth-Jensen, Tanja Horn, Michelle P. Kuchera, Dean Lee, Witold Nazarewicz, Kostas Orginos, Peter Ostroumov, Long-Gang Pang, Alan Poon, Nobuo Sato, Malachi Schram, Alexander Scheinker, Michael S. Smith, Xin-Nian Wang, Veronique Ziegler, Artificial Intelligence and Machine Learning in Nuclear Physics, Reviews of Modern Physics, submitted
2. Robert Solli, Daniel Bazin, Michelle P. Kuchera, Ryan R. Strauss, Morten Hjorth-Jensen, Unsupervised Learning for Identifying Events in Active Target Experiments, Nuclear Instruments and Methods in Physics Research Section A 1010, 165461, (2020)
3. 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).
4. 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).
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).

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, quantum computing algorithms, machine learning 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 2012-2021 we have organized 20 advanced courses. We have had almost 40 applicants per course on average. I have developed and taught six of the courses and been an organizer at 3 other courses.

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 excellence in teaching. I have also started from scratch and developed several courses on computational physics, machine learning 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 excellence 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.