**Biographical Sketch for Morten Hjorth-Jensen**

# Professional Preparation:

# 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

**Appointments:**

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

**Publications:** 147 total refereed publications; h-index = 48 (Web of Science/Publons [https://publons.com/](https://publons.com/researcher/1751939/morten-hjorth-jensen/) [researcher/1751939/morten-hjorth-jensen/](https://publons.com/researcher/1751939/morten-hjorth-jensen/)); h-index =54 (Google Scholar at <https://scholar.google.com/citations?user=nuiyEmwAAAAJ&hl=no>) 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. Ekstro¨m, C. Forss´en, 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. Ekstro¨m, G. R. Jansen, K. A. Wendt, G. Hagen, T. Papenbrock, B. D. Carlsson, C. Forss´en, 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. Ekstro¨m, G. Baardsen, C. Forss´en, 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](http://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 2012-2019 we have organized 17 advanced courses. We have had almost 40 applicants per course on average. I have developed and taught four 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.