Present and former students and post-doctoral fellows

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Master of Science, PhD and Post-doctoral fellows

I have guided and co-guided more than 100 Master of Science studentsand PhD students.

Courses, study programs and educational initiatives

I am strongly involved in teaching at all levels. I have been heading the bachelor program Physics, Astronomy and Meteorology (FAM) in the period 2002-2011. I am also strongly involved in the project Computing in Science Education. Furthermore, with European and American colleagues, we have established the recent successful Nuclear Talent initiative.

Since 1999 I have established an activity in computational physics at the Department of Physics at the University of Oslo. I have also started from scratch and developed several courses on computational physics and many-body physics. This activity was recognized with the Excellence in Teaching award from the University of Oslo in 2015. During the last twenty years I have guided more than 100 graduate students (Master of Science and PhD) and post-doctoral fellows.

With colleagues at the University of Oslo, I have been strongly involved in the development of a totally new teaching philosophy which merges computation with the traditional science amd mathematics curriculum . 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. It received the University of Oslo award for excellence in teaching in 2011 and the NOKUT award in 2012.

With colleagues from the USA and other European countries, we have started the Nuclear Talent initiate":"http://www.nucleartalent.org", where we aim at providing 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.

I initiated in 2015 and chair the new Master of Science program on Computational Science at the University of Oslo. This is a new and multi-disciplinary program across several disciplines at the College of Natural Science of the University of Oslo.

I teach or have taught recently the following courses at the University of Oslo and Michigan State University:

- FYS3150/4150 Computational Physics I, Fall semester, senior undergraduate level (Oslo)

- FYS4411 Computational Physics II: Quantum mechanical systems, graduate level, Spring semester (Oslo)

- FYS-KJM4480 Quantum mechanics for many-particle systems, graduate level, Fall semester (Oslo)

- PHYS981 Nuclear Structure, graduate level, Spring semester (MSU)

- PHY480/905 Computational Physics (MSU), undergraduate and graduate level, Spring semester

From the fall of 2018 I have developed and teach the new course on **Applied Data analysis and Machine Learning** at the University of Oslo. This course is a compulsory course that is part of the new interdisciplinary Master of Science program Computational Science. The link to the course is

- FYS-MAT3155/4155 Data Analysis and Machine Learning, senior undergraduate and graduate level, Fall semester (Oslo)

- PHY321 Classical Mechanics, MSU, undergraduate course, spring semester. First time spring 2020.

I have also taught introductory quantum physics, FYS2140, 2000-2004, Statistical Mechanics, FYS4130, 1990-1994 and I have developed an advanced course on FYS-KJM4480 Quantum mechanics for many-particle systems, 2009-2014, all at the at the University of Oslo, Norway. At Michigan I have also taught an advanced course in Nuclear Structure Physics PHYS981 Nuclear Structure, graduate level, Spring semester, 2013-2016. In addition, with Scott Bogner at Michigan State University, we taught a specialized course on Nuclear Force, PHY989, during the fall semester of 2018.

Teaching Awards:

1. University of Oslo award for excellence in teaching, 2000 (250kNOK)

2. University of Oslo award for excellence in teaching for the **Computing in Science Education** project, 2011 (250kNOK)

3. NOKUT (Norwegian entity of quality assessment in higher education) award for excellence in teaching for the **Computing in Science Education** project, 2012

4. University of Oslo award for excellence in teaching for developing the Computational Physics group, 2015 (250kNOK)

5. Favorite graduate teacher at the Department of Physics and Astronomy at Michigan State University, 2016

6. **Olav Thon Foundation** National prize for excellence in teaching award (National, all Norwegian higher education institutions, 500kNOK), 2018

7. Thomas H. Osgood Faculty Teaching award at Michigan State University, 2018

Present PhD students.

1. Benjamin Hall, Michigan State University, started 2018. Research topic: Quantum Computing and the Nuclear Many-body problem

2. Jane Kim, Michigan State University, started 2018. Research topic: Machine Learning and the Nuclear Many-body problem

3. Julie Butler, Michigan State University, started 2018. Research topic: Machine Learning and the Nuclear Many-body problem

4. Omokuyani C. Udiani , Michigan State University, started 2017, co-supervisor. Research topic: Nuclear Many-body theory

5. Danny Jammoa, Michigan State University, started 2020, co-supervisor. Research topic: Machine Learning and analysis of nuclear physics experiments.

6. Øyvind Sigmundsson Schøyen, University of Oslo, started 2019. Research topic: Time-dependent many-body theory and quantum computing

7. John Mark Aiken, University of Oslo, started 2017, defends thesis September 2020, co-supervisor. Research Topic: Machine Learning applied to Physics Education Research

8. Stain Bilek, University of Oslo, started 2020, defends thesis September 2024. Quantum Computing and Machine Learning

Present Master of Science Students.

1. Eina Jørgensen, University of Oslo, (2019-2021), co-supervisor

2. Morten Hemmingsen, University of Oslo, (2019-2021), co-supervisor

3. Huying Zhu, University of Oslo, (2019-2021), co-supervisor

4. Jens Due Bratten, University of Oslo, (2019-2021), co-supervisor

5. Gabriel Cabrera, University of Oslo, (2019-2021), co-supervisor

6. Kristian Wold, University of Oslo, (2019-2021)

7. Martin Krokan Hovden, University of Oslo, (2019-2021)

8. Johan Nereng, University of Oslo, (2019-2021)

9. Oliver Hebnes, University of Oslo, (2019-2021), co-supervisor

10. Mohamad Ismail, University of Oslo, (2019-2021), co-supervisor

11. Stian Isachsen, University of Oslo, (2018-2020), co-supervisor

Former PhD students and their present positions.

1. Justin Lietz (PhD MSU 2019), now post-doctoral fellow at Oak Ridge National Laboratory, Computational Science Division

2. Samuel Novario (PhD MSU 2018), now post-doctoral fellow at Oak Ridge National Laboratory, Physics Division

3. Fei Yuan (PhD MSU 2018), employed at Google as computational scientist

4. Gustav Baardsen (PhD UiO 2014). From 2015 to 2018, ost-doctoral researcher at the Center for Theoretical and Computational Chemistry (CTCC), University of Oslo. Now employed by Varian Medical Systems, Helsinki, Finland.

5. Simen Kvaal (PhD UiO 2009), researcher, Department of Chemistry, University of Oslo. Recipient of an ERC starting grant

6. Gustav Jansen (PhD UiO 2012), now permanent position as scientist at the Computational Science Division of Oak Ridge National Laboratory

7. Torquil MacDonald Sørensen (PhD UiO 2012), post-doctoral fellow at the Department of Mathematics, UiO

8. Jon Kerr Nilsen (PhD UiO 2010), senior engineer at the University of Oslo center for information technologies (co-supervisor)

9. Marius Lysebo (PhD UiO 2010), now Associate Professor at Oslo University College, (co-supervisor)

10. Elise Bergli (PhD UiO 2010), teacher Ås high school, Norway

11. Eirik Ovrum (PhD UiO 2007), now Associate Professor at the University College of Southeast of Norway

12. Gaute Hagen (PhD UiB and UiO 2005), now permanent position as scientist at the Physics Division of Oak Ridge National Laboratory. Recipient of the Department of Energy Early career award

13. Maxim Kartamyshev (PhD UiO), now at the Bank of Norway as senior analyst

14. Øystein Elgarøy (PhD UiO 1999), now professor of Theoretical Astrophysics at the University of Oslo, Norway (co-supervisor)

15. Lars Engvik (PhD UiO 1999), now Associate Professor at Sør-Trøndelag University College, Trondheim, Norway, (co-supervisor)

Post-doctoral fellows and their present positions.

1. Andreas Ekstrøm (UiO and MSU 2010-2014), now Associate Professor at Chalmers Technological University in Gothenburg, Sweden

2. Øyvind Jensen (UiO 2011), now researcher at the Institute for Energy Technology

3. Simen Kvaal (UiO 2008-2012), researcher, Department of Chemistry, University of Oslo. Recipient of an ERC starting grant

4. Elise Bergli (UiO 2010-2011), now teacher at Ås high school, Norway

5. Sølve Selstø (UiO 2008-2010), now Professor at Oslo Metropolitan University

6. Nicolas Michel (MSU 2013), now senior researcher at Langzhou Nuclear Physics Laboratory, China

Former Master of Science Students(links to their thesis will be added).

1. Heine Aabø, University of Oslo, (2018-2020)

2. Stian Bilek, University of Oslo, (2018-2020)

3. Thomas Sjåstad, University of Oslo, (2018-2020), co-supervisor

4. Eirik Thorsrud, University of Oslo, (2018-2020), co-supervisor

5. Halvard Sutterud, University of Oslo, (2018-2020)

6. Marius Holm, University of Oslo, (2018-2020), co-supervisor

7. Geir Utvik, University of Oslo, (2018-2020)

8. Markus Aspurusten, University of Oslo, (2018-2020), co-supervisor

9. Vebjørn Gilberg, University of Oslo, (2017-2020), co-supervisor

10. Kari Eriksen, University of Oslo, (2017-2020)

11. Robert Solli, University of Oslo, (2017-2019)

12. Andreas Lefdalsnes, University of Oslo, (2017-2019)

13. Joseph Knutson, University of Oslo, (2017-2019)

14. Bendik Samseth, University of Oslo, (2017-2019)

15. Even Nordhagen, University of Oslo, (2017-2019)

16. Øyvind Schøyen Sigmundson, University of Oslo, (2017-2019)

17. Sebastian Gregorius Winther-Larsen, University of Oslo, (2017-2019)

18. Giovanni Pederiva, University of Oslo, (2016-2018), co-supervisor

19. Anna Gribovskaya, University of Oslo, (2016-2018)

20. Andrei Kucharenka, University of Oslo, (2016-2018)

21. Vilde Moe Flugsrud, University of Oslo, (2016-2018)

22. Alfred Alocias Mariadason, University of Oslo, (2016-2018)

23. Marius Jonsson, University of Oslo, (2016-2018)

24. Hans Mathias Vege Mamen, University of Oslo, (2016-2019), co-supervisor

25. Alexander Fleischer, University of Oslo, (2015-2017)

26. Håkon Emil Kristiansen, University of Oslo, (2015-2017)

27. Morten Ledum, University of Oslo, (2015-2017)

28. Håkon Treider Vikør, University of Oslo, (2015-2017), co-supervisor

29. Jon-Andreas Stende, University of Oslo, (2015-2017), co-supervisor

30. Sean Bruce Sangholt Miller, University of Oslo, (2015-2017)

31. Christian Fleischer, University of Oslo, (2015-2017)

32. John Bower, Michigan State University, (2014-2017)

33. Wilhelm Holmen, University of Oslo (2014-2016)

34. Roger Kjøde, University of Oslo, (2014-2016)

35. Håkon Sebatian Mørk, University of Oslo, (2014-2016)

36. Jonas van den Brink, University of Oslo, (2014-2016), co-supervisor

37. Marte Julie Sætra, University of Oslo, (2014-2016), co-supervisor

38. Audun Skau Hansen, University of Oslo, (2013-2015)

39. Henrik Eiding, University of Oslo, (2012-2014)

40. Svenn-Arne Dragly, University of Oslo, (2012-2014)

41. Milad Hobbi Mobarhan, University of Oslo, (2012-2014)

42. Ole Tobias Norli, University of Oslo, (2012-2014)

43. Filip Sand, University of Oslo, (2012-2014), co-supervisor

44. Emilie Fjørner, University of Oslo, (2012-2014), co-supervisor

45. Jørgen Høgberget, University of Oslo, (2011-2013)

46. Sarah Reimann, University of Oslo, (2011-2013)

47. Karl Leikganger, University of Oslo, (2011-2013)

48. Sigve Bøe Skattum, University of Oslo, (2011-2013)

49. Veronica Berglyd Hansen, University of Oslo, (2010-2012)

50. Camilla Nestande Kirkemo, University of Oslo, (2010-2012), co-supervisor

51. Christoffer Hirth, University of Oslo, (2009-2011)

52. Marte Hoel Jørgensen, University of Oslo, (2009-2011)

53. Yang Min Wang, University of Oslo, (2009-2011)

54. Ivar Nikolaisen, University of Oslo, (2009-2011)

55. Vegard Amundsen, University of Oslo, (2008-2010)

56. Håvard Sandsdalen, University of Oslo, (2008-2010)

57. Lars Eivind Lervåg, University of Oslo, (2008-2010)

58. Magnus Lohne Pedersen, University of Oslo, (2008-2010)

59. Simen Sørby, University of Oslo, (2008-2010), co-supervisor

60. Sigurd Wenner, University of Oslo, (2008-2010), co-supervisor

61. Lene Norderhaug Drøsdal, University of Oslo, (2007-2009)

62. Islen Vallejo, University of Oslo, (2007-2009), works at the Norwegian Institute for Air Research

63. Jacob Kryvi, Norwegian University of Science and Technology, (2007-2009), co-supervisor

64. Rune Albrigtsen, University of Oslo, (2007-2009)

65. Johannes Rekkedal, University of Oslo, (2007-2009)

66. Patrick Merlot, University of Oslo, (2007-2009)

67. Gustav Jansen, University of Oslo, (2006-2008)

68. Ole Petter Harbitz, University of Oslo, (2006-2008)

69. Sutharsan Amurgian, University of Oslo, (2005-2007)

70. Jon Thonstad, University of Oslo, (2005-2007)

71. Espen Flage-Larsen, University of Oslo, (2003-2005)

72. Joachim Berdahl Haga, University of Oslo, (2004-2006)

73. Jon Kerr Nilsen, University of Oslo, (2002-2004)

74. Simen Kvaal, University of Oslo, (2002-2004)

75. Simen Reine Sommerfelt, University of Oslo, (2002-2004)

76. Mateuz Marek Røstad, University of Oslo, (2002-2004)

77. Victoria Popsueva, University of Oslo, (2002-2004)

78. Eivind Brodal, University of Oslo, (2001-2003)

79. Eirik Ovrum, University of Oslo, (2001-2003)

80. Ronny Kjelsberg, Norwegian University of Science and Technology, (2001-2003)

Lectures and organization of schools:

1. Morten Hjorth-Jensen, Daniel Bazin, Sean Liddick, , Michelle Kuchera, and R. Ramanujan, Online Nuclear Talent course on Machine Learning Applied to Nuclear Physics, European Center for Theoretical Nuclear Physics and Related Areas, Trento, Italy, June 22 to July 3. Main organizer and teacher.

2. Morten Hjorth-Jensen, Nuclear Talent Course on Machine Learning in Nuclear Physics for the Erasmus+ program `http://www.emm-nucphys.eu/`, European Master in Nuclear Physics, University of Basse-Normandie and GANIL, January 20-31, 2020. 45 lectures and 45 exercise sessions. Main teacher

3. Morten Hjorth-Jensen, Matthew Hirn, Michelle Kuchera, and R. Ramanujan, `https://indico.frib.msu.edu/event/16/`, FRIB TA Summer School - Machine Learning Applied to Nuclear Physics, Facility for Rare Isotope Beams (FRIB) on the Michigan State University campus in East Lansing, MI from May 20 to 23, 2019. Main organizer and teacher.

4. Morten Hjorth-Jensen, Nuclear Talent Course on Machine Learning in Nuclear Physics for the Erasmus+ program `http://www.emm-nucphys.eu/`, European Master in Nuclear Physics, University of Basse-Normandie and GANIL, January 21-February 1, 2019. 45 lectures and 45 exercise sessions. Main teacher

5. Nuclear Talent course on Many-body methods for nuclear physics, from Structure to Reactions at Henan Normal University, P.R. China, July 16-August 5 2018. Teachers: Kevin Fossez, Morten Hjorth-Jensen, Thomas Papenbrock, and Ragnar Stroberg.

6. Alex Brown, Alexandra Gade, Morten Hjorth-Jensen, Gustav Jansen, Robert Grzywacz, Nuclear Talent course on Nucleartheory for Nuclear Structure Experiments, July 3-21 2017. Main organizer and teacher with in total fifteen hours of lectures.

7. Hjorth-Jensen, Morten, High performance computing in Nuclear Physics, Lecture at the *Advanced Computational Research Experience* at Michigan State University, East Lansing, Michigan, June 1, 2017.

8. Hjorth-Jensen, Morten, How to write good code, Lecture at the *Advanced Computational Research Experience* at Michigan State University, East Lansing, Michigan, May 24, 2017.

9. Hjorth-Jensen, Morten, Computational Nuclear Physics and Post Hartree-Fock Methods. Configuration Interaction Theory, Many-Body Perturbation Theory and Coupled Cluster Theory, five lectures at 28th Indian-Summer School on Ab Initio Methods in Nuclear Physics, Prague, Czech Republic, August 29 - September 2, 2016.

10. Hjorth-Jensen, Morten, Computational Physics and Quantum Mechanical Systems, one week course on Computational Physics at the University of Tunis El Manar, Tunis, Tunisia, May 16-20, 2016. In total 15 hours of lectures and 15 hours of computer lab and exercises.

11. Co-organizer with Giuseppina Orlandini and Alejandro Kievsky of Nuclear Talent course Few-body methods and nuclear reactions, ECT*, Trento, Italy, July 20-August 7 2015

12. Carlo Barbieri, Wim Dickhoff, Gaute Hagen, Morten Hjorth-Jensen, and Artur Polls, Nuclear Talent course on Many-body methods for nuclear physics, GANIL, Caen, France, July 5-25 2015. Main organizer and teacher with in total five hours of lectures.

13. Hjorth-Jensen, Morten, ECT* Doctoral Training Program 2015 on Computational Nuclear Physics, April 13- May 22, ECT*, Trento, Italy. I taught the last week of the lecture series. In total I have ten one hour lectures.

14. Hjorth-Jensen, Morten, Nuclear Talent School in Nuclear Astrophysics, co-organizer with Richard Cyburt and Hendrik Schatz of the Nuclear Talent course on Nuclear Astrophysics, Michigan State University, May 26 - June 13, 2014.

15. Hjorth-Jensen, Morten, Nuclear Talent course on Density Functional theories, co-organizer with Scott Bogner, Nicolas Schunck, Dario Vretenar and Peter Ring, European Center for Theoretical Nuclear Physics and Related Areas, Trento, Italy, July 13 -August 1 2014.

16. Hjorth-Jensen, Morten, Nuclear Talent Course Introduction on High-performance computing and computational tools for nuclear physics; ECT*, Trento, Italy, June 24 - July 13 2012. Main organizer and teacher together with Francesco Pederiva, Kevin Schmidt and Calvin Johnson.

17. Hjorth-Jensen, Morten. Computational environment for Nuclear Structure, five lectures in Nuclear Physics at Universidad Complutense Madrid; 2011-01-17 - 2011-02-09

18. Hjorth-Jensen, Morten, organizer with David Dean, Thomas Papenprock and Gaute Hagen. Third MSU-UT/ORNL-UiO winter school in nuclear physics; Oak Ridge National Lab, Tennessee, January 2012

19. Hjorth-Jensen, Morten, organizer with Alex Brown and teaching five lectures. Second MSU-UT/ORNL-UiO winter school in nuclear physics, East Lansing, Michigan, USA; 2011-01-03 - 2011-01-07

20. Hjorth-Jensen, Morten, organizer, First MSU-UT/ORNL-UiO winter school in nuclear physics, Wadahl, Norway, January 4-10 2010

21. Hjorth-Jensen, Morten. Five lectures on Theory of shell-model studies for nuclei. CERN/Isolde course on nuclear structure theory; 2010-03-01 - 2010-03-04

22. Hjorth-Jensen, Morten. Six lectures on Nuclear interactions and the Shell Model. 8th CNS-EFES International Summer School, Riken, Tokyo, Japan, 2009-08-26 - 2009-09-01

23. Hjorth-Jensen, Morten. Five lectures on nuclear theory at the 20th Chris Engelbrecht Summer School in Theoretical Physics, Stellenbosch, South Africa, 2009-01-19 - 2009-01-28

24. Hjorth-Jensen, Morten. Nuclear many-body theory, five lectures at the UK Postgraduate Nuclear Physics Summer School, Leicester, UK, 2009-09-12 - 2009-09-23

25. Hjorth-Jensen, Morten. Nuclear many-body methods. Lectures series at Lund University; 2008-05-04 - 2008-05-07

26. Hjorth-Jensen, Morten. Trends in Nuclear Structure Theory. Workshop at the University of Lund; 2008-05-07 - 2008-05-07

27. Hjorth-Jensen, Morten. Trends in Nuclear Structure Theory. Physics Division Seminar; 2008-04-17 - 2008-04-17

28. Hjorth-Jensen, Morten. Trends in nuclear structure theory. Lecture series at the University of Padova and Legnaro National Laboratory, Padova Italy; 2008-07-16 - 2008-07-19

29. Hjorth-Jensen, Morten. Five lectures on Monte Carlo methods and applications in the physical sciences. eScience Winther School 2007; Geilo, Norway 2007-01-28 - 2007-02-02

30. Hjorth-Jensen, Morten. Five lectures at the ISOLDE Spring School in Nuclear Theory; CERN, Switzerland, 2007-05-21 - 2007-05-26

31. Hjorth-Jensen, Morten. Ten lecures at ECT* Doctoral Training Programme 2007; Trento, Italy, April 16-20

32. Hjorth-Jensen, Morten. From the nucleon-nucleon interaction to a renormalized interaction for nuclear systems. Lecture series at Michigan State University; April 2005

33. Hjorth-Jensen, Morten. CENS: A computational Environment for Nuclear Structure. Isolde Lecture series; 2004-11-11 - 2005-11-25