

TEACHING PORTFOLIO

TEACHING QUALIFICATIONS

November 2015: C1 (CEFR) "Teaching in English" certification.

March 2015: Lecturer Training Programme Qualification Diploma obtained after a one-year pedagogical course at the Univ. of Southern Denmark.

ADMINISTRATIVE TASKS RELATED TO EDUCATION

Coordinator of the CP3 Genius Program for talented students in physics at the Faculty of Science of the University of Southern Denmark (Odense) since November 2015.

Organizer of the 2017 Lattice Winter School (10th Odense Winter School on Theoretical Physics) for local and international PhD students. CP 3 -Origins Centre for Cosmology and Particle Physics, University of Southern Denmark (Odense), Nov. 27 to Dec. 1, 2017.

Organizer of the 9th Odense Winter School on Theoretical Physics for local and international PhD students. CP 3 -Origins Centre for Cosmology and Particle Physics, University of Southern Denmark (Odense), Feb. 6 to Feb 10, 2017.

Organizer of the 2015, 2016 and 2017 international Physics Challenge at the CP3-Origins Centre for Cosmology and Particle Physics at the University of Southern Denmark (Odense).

PhD committee member at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense) since November 2014 and Head of the PhD committee since January 2018.

TEACHING AND SUPERVISION EXPERIENCE

University Courses at the Department of Mathematics and Data Analysis of the University of Southern Denmark (SDU) 2020

Fall: Mathematical methods for economics, 5 ECTS. Bachelor level.

Curves and Surfaces, 5 ECTS, Bachelor and Master level.

Spring: 'Convex analysis', 5 ECTS, Master and Bachelor level,

'Complex analysis and partial differential equations', 5 ECTS, Bachelor level.

•2019:

• Fall: 'Curves and surfaces', 5 ECTS, Master and Bachelor level,

'Mathematical methods for economics', 5 ECTS, Bachelor level.

• Spring: 'Convex analysis', 5 ECTS, Master and Bachelor level,

'Curves and surfaces', 5 ECTS, Bachelor level.

2018:

• Fall: 'Curves and surfaces', 5 ECTS, Master and Bachelor level,

• Spring: 'Convex analysis', 5 ECTS, Master and Bachelor level,

'Curves and surfaces', 5 ECTS, Bachelor level.

2017:

• Fall: 'Curves and surfaces', 5 ECTS, Bachelor level,

• Spring: 'Convex analysis', 5 ECTS, Master and Bachelor level,

'Mathematical methods in Chemistry and Nanoscience', 5 ECTS, Bachelor level,

'First Year Project' activity, 10 ECTS, Bachelor level.

2016:

• Fall: 'Ordinary Differential Equations and Geometry', 10 ECTS, Bachelor level,

• Spring: 'Convex analysis', 5 ECTS, Master and Bachelor level.

2015:

• Fall: 'Ordinary Differential Equations and Geometry', 10 ECTS, Bachelor level

• Spring: 'Convex analysis', 5 ECTS, Bachelor level.

2014:

• Spring: 'Groups and vector spaces', 5 ECTS, Bachelor level.

2013:

• Fall: 'Convex analysis', 5 ECTS, Bachelor level.

Invited Lectures at International Summer and Winter Schools:

"A Lattice approach to Heavy Flavor Physics and precision tests of the Standard Model", series of 3 invited lectures at the VII Parma International School of Theoretical Physics, Parma, Italy, September 14 - 20, 2014.

"Heavy Flavor Physics and Precision Tests of the Standard Model on the Lattice", series of 4 invited lectures at "Physics Beyond the Higgs", the 52nd International School for Theoretical Physics, Schladming, Styria, Austria, 1 - 8 March 2014.

"Challenges and progress in lattice determinations of the hadronic contributions to $(g - 2) \mu$ ", series of 2 invited lectures at the STRONGnet summer school in Edinburgh, May 14- June 8, 2012.

"Non perturbative renormalization and $O(a)$ improvement", series of 3 invited lectures at the – Winter School and Workshop on Lattice Gauge Theories – "Non-perturbative improvement and renormalization", Feb. 2 - Feb. 4, 2004, Center for Computational Physics, University of Tsukuba, Japan.

Lecturer (and organizer) at the "APE Tutorials" at DESY Zeuthen, Germany, Feb. 19 - 21, 2002.

Examination and external examiner tasks:

External (Danish) Examiner in Physics and Astronomy for the fields of Particle Physics, Phenomenology and Computational Physics.

Master thesis opponent for: Jon Brogaard, Niels Bohr Institute Copenhagen, DK, November 3, 2017.

Master thesis committee member for: Paola Giovannetti, Universita' degli Studi di Torino, Italy, December 21, 2020.

PhD examination committee member for:

Christian Walther Andersen, IMADA, SDU, April 20, 2020.
Nicola Dondi, FKF, SDU, January 28, 2020.
Johannes Koenig, FKF, SDU, December 11, 2019.
Helene Gertov, FKF, SDU, October 10, 2018.
Kasper Langaebler, FKF, SDU, October 10, 2018.
Martin Hansen, IMADA, SDU, April 12, 2018.
Ava Khamseh, University of Edinburgh, UK, August 16, 2017.
Matthew W. Spraggs, University of Southampton, UK, October 10, 2016.
Thomas Rössler, University of Lund, Sweden, October 23, 2015.
Matin Mojaza, FKF, SDU, July 28, 2014.

Supervision

January 2019 –. Supervision of Kim Hoang Le, Bachelor student at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense).
September 2018 –. Supervision of Assistant Prof. Benjamin Jaeger within the Lecturer Training Programme at SDU.
2March 2018 - August 2018. Supervision of Paola Giovannetti, Master student at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense), within an Erasmus exchange programme with the University of Turin (Italy).
January 2018 - June 2018. Supervision of Michael Westh Hansen, Bachelor student at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense).
June 2014 - June 2017. Supervision of Andrea Bussone, PhD student at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense). Andrea has been awarded a postdoc position at the University Autonoma of Madrid starting from September 2017.
Mar. 2017 - June 2017. Supervision of Mikkel Have Eriksen, Casper Asbjørn Eriksen and Jens Jakob Tønning Kamp, for a first year project at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense).
September 2016 - January 2017. Supervision of Andreas Bech, for an individual study activity at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense).
August 2015 - August 2016. Supervision of Christian Walther Andersen, Master student at the Department of Mathematics and Data Analysis of the University of Southern Denmark (Odense). Christian has been awarded a PhD position at IMADA starting from February 2017.
Feb. 2011 - Jan 2012. Co-supervision of Christian Wittemeier, Diploma student at the Westfälische Wilhelms University, Münster.
June 2010 - July 2011. Co-supervision of Samantha Katherine Dooling, Diploma student at the Westfälische Wilhelms University, Münster. The results have been published in JHEP 1405 (2014) 060.
Sep. 2009 - Oct. 2010. Co-supervision of Benjamin Jäger, Diploma student at the Gutenberg University, Mainz. The results have been published in JHEP 1203 (2012) 055 and Eur.Phys.J. A48 (2012) 139.
Nov. 2008 - Dec. 2011. Co-supervision of Bastian Knippschild, PhD student at the Gutenberg University, Mainz. The results have been published in Phys.Rev. D86 (2012) 074502.
Oct. 2004 - Dec. 2005. Supervision of Magdalena Luz, Master student at the Humboldt University, Berlin. The results have been published in Phys. Lett. B632 (2006) 663.
Oct. 2003 - Oct. 2005. Co-supervision of Roland Hoffmann, PhD student at the Humboldt University, Berlin. The results have been published in Comput. Phys. Commun. 165 (2005) 49, JHEP 0503 (2005) 029 and JHEP 0507 (2005) 007.

TEACHING PHILOSOPHY:

My aspirations as a teacher are to generate competency, transfer skills and knowledge and stimulate critical thinking. Teaching should be research oriented, if not possible on the content, which is not always advanced enough (for example for courses at the Bachelor level), at least in the methods and approaches. Studies show that students exposed to research based teaching/learning reach a deeper level of understanding. In addition, the emphasis on processes of knowledge construction has a high multidisciplinary value. In my lectures I always try to convey the researcher attitude, spending time on scientific and deductive approaches rather than adopting a more sterile "communication of notions" model. Also during the exam I always value and try to assess the ability of the students in dealing with problems which are not exactly those in the book or in the notes. I find this crucial in order to provide feed-forward to the students for the future studies, exams and activities in the scientific environment.

Teaching models obviously have to be adapted to the digital generation. Lectures should first of all offer something that students cannot get from an on-line lecture/video and secondly, once at the lecture, students should be kept highly engaged. In this respect it is important to integrate the use of digital devices in the lecture and to make that part of learning activities. That's the idea behind most of the e-learning tools, which I have used during my lectures, as for example electronic polls for intermediate assessments.

In my view, a course should first have a rather pedagogical part, followed by a more interactive one, perhaps with an assessment in between in order to get a feeling how the transmission of basic concepts worked. The second part of the course can take the form of case studies, group work, learning/reading circles or hands on activities, which in my area often mean and involve computer programming. Programming and the use of numerical methods and algorithms usually allows the students to fully exploit their laptop computers as learning tools, and eventually stimulates developing new ways of defining and tackling problems.

Depending on the subject of the course, the progression of the class can be assessed either through traditional grading tests and oral exams or on the basis of projects, panels and presentations for more advanced classes. That applies to intermediate as well as to final assessments. The evaluations from the students are crucial and their feedback is fundamental in improving my teaching. That concerns the course-curriculum, as I know I have been teaching effectively

when discussions and questions help me exploring new aspects of the subject I have been covering, as well as the more organizational aspects of the course, concerning for example the exam modality. A clear presentation and discussion of the latter helps creating a relaxed atmosphere with the class as, notoriously, 'how is the exam ?' is one of the questions most frequently asked by students. I had opportunities to put my teaching philosophy to tests by teaching at frontal lectures at SDU and at Summer/Winter schools at the Bachelor/Master/PhD levels in both Mathematics and Physics, and by advising and supervising Diploma and PhD students, always with positive feedback.