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## Teaching Portfolio

### Educational training

2014	Completed the University Lecture Training Program (Universitets Pædagogikum)
2014	Course: Interactive lecturing
2014	Course: Oral examination in higher education in Denmark
2014	Course: ePortfolio
2014	Course: Body language

### Administrative tasks related to education

Chairman of the PhD committee at the Department of Physics, Chemistry and Pharmacy 2018-present and the Faculty of Natural Sciences, SDU, 2018-2020.

Educational responsible and chairman of the education committee for physics at the Department of Physics, Chemistry and Pharmacy, SDU, 2019-2021.

Ordinary Member of Education committee at Department of Physics, Chemistry and Pharmacy, SDU, 2017-2019, 2021-present

Member of Censorkorpset (the censor corps) under the Danish Ministry of Education as an external examiner in Physics and Astronomy at the Danish Universities, 2016-present

### Experience with teaching, supervision and examination

#### Courses taught

2022	Lecture third year "Particle Physics", SDU. ~ 15 students
2021:	Lecture third year "Particle Physics", SDU. ~ 12 students
2020	Lecture fourth year "Quantum Physics", SDU. ~ 10 students
2020	Lecture first year "Mechanics and Thermodynamics", SDU. ~ 50 students
2020	Lecture third year "Particle Physics", SDU. ~ 12 students
2019	Lecture first year "Mechanics and Thermodynamics", SDU. ~50 students
2018	Lecture first year "Fundamentals of Physics", SDU. ~13 students
2018	Lecture third year "Introduction to Particle Physics", SDU. ~ 12 students
2018	Lecture fourth year "Classical Field Theory", SDU. ~ 14 students
2017	Lecture third year "Introduction to Particle Physics", SDU. ~16 students
2017	Lecture first year "Fundamentals of Physics", SDU. ~30 students
2016	Lecture third year "Introduction to Particle Physics", SDU. ~17 students
2016	Lecture first year "Fundamentals of Physics", SDU. ~30 students
2015	Lecture first year "Physics and Mathematics: methods and models", SDU. ~250 students
2015	Lecture third year "Introduction to Particle Physics", SDU. 8 students
2014	Lecture first year "Physics and Mathematics: methods and models", SDU. ~250 students
2014	Lecture third year "Introduction to Particle Physics", SDU. 15 students
2014	Lecture Study Group on "Introduction to Particle Physics", SDU. 4 students
2013	Lecture first Year "Physics and Mathematics: methods and models", SDU. ~250 students
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2007	Instructor first year "Classical Mechanics II, Review class", NBI. ~20 students
2007	Instructor first year "Mechanics and Mathematics for Nanotechnology Students", NBI. ~25 students
2006	Instructor first year "Classical Mechanics II", NBI. ~30 students

#### Independent study activities

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 2021 Graduate, "Anomalies in Quantum Mechanics". 2 students  
 2020 Graduate, "Quantum field theory and aspects of general relativity". 1 student.  
 2020 Graduate, "Limits of perturbation theory". 1 student.  
 2018 Graduate, "Introduction to Plasma Physics". 1 student.  
 2018 Graduate, "Supersymmetry". 2 students.  
 2017 Graduate, "String Theory". Study group, 4 students.  
 2017 Graduate, "Outreach Project in Particle Physics". 1 student. (with M. Christensen)  
 2016 Graduate, "Supersymmetry". 1 student.  
 2016 Graduate, "Scattering in Quantum Chromodynamics". 1 student.  
 2015 Graduate, CP3-Genius Project, "Feynman's Path Integral Formulation of Quantum Mechanics". 1 student.  
 2014 Graduate, "Supersymmetry". 1 student.  
 2013 Graduate, "String theory". Study group, 4 students.

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 Master Students

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 2021 Peter Græns Larsen, "Fixed points and conformality in quantum field theories".  
 2021 Jakob Møllerup Benfeldt, "Dynamics of (supersymmetric) gauge theories".  
 2020 Martin Christensen, "Conformal Field Theories in d Dimensions".  
 2016 Jacob Esbensen, "Conformal Aspects of Semi-Simple Gauge Theories".

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 Bachelor Students

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 2022 Axel Halgaard Kristensen, "Following the paths and diagrams of Feynman".  
 2020 Johan Sieborg, "Topological and non-Topological Solitons in Classical Field Theory".  
 2020 Kristian Peter Lorenzen, "Symmetries and Noether's Theorem".  
 2019 Jakob Benfeldt, "The Electroweak Interactions".  
 2019 Peter Græns Larsen, "Solutions in Classical Field Theory".  
 2018 Martin Christensen, "Magnetic Monopoles in Gauge Theories".  
 2017 Kristoffer Pedersen, "Supersymmetric Quantum Mechanics". (with J. Bulava)  
 2017 Mathias Hansen, "Following the Paths and Diagrams of Feynman".  
 2017 Kris Jensen & Christoffer Iversen, "Scattering Processes and Bound States in Quantum Chromodynamics".  
 2017 Kristian Jørgensen, "The Electroweak Interactions and the Higgs Mechanism".  
 2016 Anders Christiansen, "Symmetries in Particle Physics".  
 2016 Rune Lassen, "Feynman's Path Integrals, Rules and Diagrams".  
 2015 Frederik Faarvang Hansen, "Gauge Theory of the Weak Interactions".  
 2015 Nicolai Christian Wallin Borch-Andersen, "Quantum Chromodynamics and Asymptotic Freedom".

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 First year projects

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 2016 "Analysis of the Three Body Problem", Celestial Mechanics, 3 students (with E. Mølgaard).  
 2016 "Tidal/Gravitational Locking", Celestial Mechanics, 4 students (with E. Mølgaard).  
 2016 "Conserved Quantities in Celestial Mechanics", Celestial Mechanics, 1 student (with E. Mølgaard).  
 2015 "Tidal Forces", Celestial Mechanics, 4 students (with E. Mølgaard).  
 2015 "Interplanetary Route Planning", Celestial Mechanics, 5 students (with E. Mølgaard).

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 Censor for exams

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 Censor for exams, BSc theses, MSc theses at Danish universities  
 Chairman of the PhD committee for Andrea Bussone (2017), Jens Frederik Colding Krog (2016), Esben Mølgaard (2014).  
 Opponent for the PhD defense of Tommi Alanne, University of Jyväskylä, Finland (2015), Rebecca M. Simms, University of Liverpool, UK (2018).

## Reflections on teaching

When we are born we all tend to possess a deep desire for learning and to better understand the world around us. One might even be tempted to speculate that every boy or girl come with a natural instinct to wanting to structure their experiences in order to fully grasp and comprehend the world in which they are themselves the actors. In this sense it seems to me as if we are all born questioners and philosophers.

It has always puzzled me why the vast majority of people loose their natural wish to learn and ask questions as they grow older. Is it due to poor teaching? Is it due to poorly chosen curricular in the educational system?

At the most fundamental level I see my role as a teacher to inspire and to ignite that spark for wanting to acquire knowledge again that I believe every person possess from birth. I feel that my main motivation for teaching is eventually to see the students grow and to see them keep pursuing the unknown. Such considerations are the basis for why I choose to teach in the manner I do.

I want the students to ask critical questions and I want them to make independent thoughts. One way I try to accomplish this is to have discussions with the students during lectures, training sessions and anywhere in between. I believe that it is more fruitful for an individual to learn via discussion with one another and by exchanging ideas and thoughts. Student activity in class is therefore strongly encouraged and I try hard to make the students feel at home and not to be afraid to ask the "stupid" questions. Contact with the students and making them feel comfortable in class through a nonhierarchical approach is therefore a vital element of my teaching. For this reason I also have open office hours and the students are always welcome to come by.

By having the dialogue as an essential part of my courses I also believe that my teaching indirectly becomes based on the constructivists approach where the student is responsible for his/her own teaching. Without them being told directly to be responsible for their own learning they become intertwined with the material and subject through mutual interactions and thereby progress through and acquire more knowledge.

I believe in positivity. A positive attitude is always superior to a negative attitude. I try to convey this through my lectures by showing as much genuine enthusiasm about the field as possible.

Lastly in order to fulfill my goal as to inspire the students for pursuing the unknown and to uncover new ground my teaching is research based. In my field of study this implies that we engage both in the historical developments of certain topics but also strive to reach the frontiers of current knowledge. Only by possessing both a deep and broad view of the field is it possible to advance and contribute with new knowledge and insights.