AARHUS UNIVERSITY

061097-0265
201805275

Nikolaj Roager Christensen

HAR DEN 30. JANUAR 2024 BESTÅET

Kandidatuddannelsen i fysik

VED AARHUS UNIVERSITET
OG HAR DERMED RET TIL AT BETEGNE SIG

cand.scient. i fysik

Master of Science (MSc) in Physics
candidatus scientiarum

Aarhus, den 15. februar 2024

Erik Østergaard Jensen
dekan for Aarhus Universitet Faculty of Natural Sciences

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I henhold til bekendtgørelse nr. 2285 af 1. december 2021, om universitetsuddannelser tilrettelagt på heltid (Uddannelsesbekendtgørelsen), er kandidatuddannelsen en forskningsbaseret uddannelse, der kvalificerer til selvstændigt at varetage erhvervsfunktioner på baggrund af kundskaber og metodiske færdigheder inden for et eller flere fagområder.

Kandidatuddannelsen i fysik er normeret til: **120 ECTS**

Nikolaj Roager Christensen

har opnået følgende resultater:

	7-trinsskala	ECTS-skala	Bestået
Obligatoriske kurser			
Fysik og astronomi studenterkollokvium 5 ECTS			**Bestået**
Fysikkurser			
Almen relativitetsteori 5 ECTS	**12**	**A**	**Bestået**
Atomic, Molecular and Optical Physics II 10 ECTS	**4**	**D**	**Bestået**
Engineering of Complex Quantum Systems 5 ECTS	**10**	**B**	**Bestået**
Faststoffysik II 10 ECTS	**12**	**A**	**Bestået**
Kvantemekanik II 10 ECTS	**10**	**B**	**Bestået**
Particle Physics II 10 ECTS	**12**	**A**	**Bestået**
Praktisk programmering og numeriske metoder 10 ECTS	**12**	**A**	**Bestået**
Quantum Engineering II 10 ECTS	**12**	**A**	**Bestået**
Specialeeksamen			
Speciale i fysik 45 ECTS Numerically simulating anyons in the fractional quantum Hall effect	**7**	**C**	**Bestået**

Bevisets rigtighed bekræftes

Aarhus, den 15. februar 2024

Fatima Ahmuljic

Fatima Ahmuljic
uddannelsesadministrativ medarbejder

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Kompetenceprofil for uddannelsen

Formålet med kandidatuddannelsen er, på baggrund af de faglige og personlige kompetencer, som er erhvervet i den forudgående bacheloruddannelse, at udvikle den studerende fagligt og personligt, så kandidaten:

- Opnår kvalifikationer der giver adgang til ansættelse i private og offentlige virksomheder og organisationer såvel nationalt som internationalt, hvor der kræves sagkundskab på højt niveau inden for fysik.
- Erhverver de nødvendige forudsætninger for videre studier, herunder til ph.d. uddannelse.

Kandidaten har i forhold til bacheloren udbygget sin faglige viden, analytiske kompetencer og selvstændighed således, at kandidaten selvstændigt kan anvende videnskabelig teori og metode inden for fysik. Gennem uddannelsen har kandidaten opnået kompetencer inden for følgende overordnede kompetencemål:

- Kandidaten behersker fysik bredt og har detaljeret viden om centrale discipliner, metoder, teorier og begreber inden for fysik.
- Kandidaten kan selvstændigt planlægge, lede og gennemføre projekter og anvende resultaterne af disse i en fagligt relateret beslutningsproces.
- Kandidaten kan vurdere anvendeligheden og hensigtsmæssigheden af teoretiske, eksperimentelle og praktiske metoder til analyse og løsning af faglige spørgsmål og problemstillinger.
- Kandidaten kan selvstændigt og kritisk strukturere egen kompetenceudvikling.
- Kandidaten er i stand til systematisk og kritisk at sætte sig ind i nye fagområder.
- Kandidaten kan formidle og kommunikere faglige spørgsmål og problemstillinger i såvel et videnskabeligt som et alment forum.
- Kandidaten kan på naturvidenskabelig baggrund indgå i konstruktivt samarbejde om løsning af faglige problemstillinger.
- Kandidaten har forståelse for og indsigt i fysikkens sammenhæng med andre naturvidenskabelige fagområder og har kvalificeret viden om fysikkens samspil med det omgivende samfund.

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Nikolaj Roager Christensen

HAS ON 30 JANUARY 2024 PASSED THE EXAMINATIONS REQUIRED FOR THE

Master's Degree Programme in Physics

AT AARHUS UNIVERSITY
AND HAS THUS BEEN AWARDED THE DEGREE

Master of Science (MSc) in Physics

cand.scient. i fysik
candidatus scientiarum

Aarhus, 15 February 2024

Erik Østergaard Jensen
Dean of Aarhus University Faculty of Natural Sciences

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Pursuant to the Ministerial Order no. 2285 of 1 December 2021 on Degree Programmes at Universities (the University Programme Order (Uddannelsesbekendtgørelsen)), the Master's degree is a research-based full time programme of study which qualifies graduates for professional careers by providing them with expertise and methodological competences in one or more subject areas.

The Master's Degree Programme in Physics is rated at: **120 ECTS**

Nikolaj Roager Christensen

has obtained the following results:

	7-point scale	ECTS scale	Passed
Compulsory Courses			
Physics and Astronomy Student Colloquium 5 ECTS			**Passed**
Physics			
General Relativity 5 ECTS	**12**	**A**	**Passed**
Atomic, Molecular and Optical Physics II 10 ECTS	**4**	**D**	**Passed**
Engineering of Complex Quantum Systems 5 ECTS	**10**	**B**	**Passed**
Solid State Physics II 10 ECTS	**12**	**A**	**Passed**
Quantum Mechanics II 10 ECTS	**10**	**B**	**Passed**
Particle Physics II 10 ECTS	**12**	**A**	**Passed**
Practical Programming and Numerical Methods 10 ECTS	**12**	**A**	**Passed**
Quantum Engineering II 10 ECTS	**12**	**A**	**Passed**
Master's Thesis			
Master's Thesis in Physics 45 ECTS Numerically simulating anyons in the fractional quantum Hall effect	**7**	**C**	**Passed**

The validity of this document is confirmed

Aarhus, 15 February 2024

Fatima Ahmuljic

Fatima Ahmuljic
Administrative Officer

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Skills Profile for the Programme

The aim of the Master's degree programme is to develop the academic and personal skills the student acquired during the previous Bachelor's degree programme, so that the Master:

- Obtains qualifications for employment in private and public sector companies and organisations - both in Denmark and abroad - where a high level of expertise in Physics is required.
- Acquires the necessary prerequisites for further studies, including a PhD degree programme.

Compared with Bachelors, Masters have expanded on their academic knowledge, analytical skills and independence to the extent that the Master is able to independently apply scientific theory and methodology within the field of Physics. By completing the degree programme, the Master obtains skills in the following overall competence goals:

- The Master has general knowledge of Physics and detailed knowledge of key disciplines, methodologies, theories and concepts within Physics.
- The Master can independently plan, manage and implement projects and apply the results in scientifically relevant decision processes.
- The Master can assess the applicability and appropriateness of theoretical, experimental and practical methodologies for the analysis and solution of scientific questions and issues.
- The Master can structure his/her own competence development independently and critically.
- The Master is able to systematically and critically familiarise himself/herself with new subject areas.
- The Master can relay and communicate academic questions and issues to both a scientific and a general audience.
- The Master can collaborate constructively on a scientific basis to solve subject - related issues.
- The Master has an understanding of and insight into the connection between Physics and the other scientific subject areas, and has qualified knowledge regarding the interaction between Physics and society at large.

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Diploma Supplement

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 Last name(s)
Christensen

1.2 First name(s)
Nikolaj Roager

1.3 Date of birth (dd/mm/yyyy)
06/10/1997

1.4 Student identification number or code
Matriculation number: 201805275 / Civil registration number: 061097-0265

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Name of qualification and (if applicable) title conferred (in original language)
cand.scient. i fysik
Master of Science (MSc) in Physics

2.2 Main field(s) of study for the qualification
The degree programme provides students with advanced knowledge of basic and applied physics and materials science.

2.3 Name and status of awarding institution (in original language)
Aarhus Universitet (Aarhus University) is an independent institution under the public-sector administration and supervised by the Ministry of Higher Education and Science and regulated according to the University Act no. 261 of 18 March 2015.

2.4 Name and status of institution (if different from 2.3) administering studies (in original language)
Not applicable / as above

2.5 Language(s) of instruction/examination
Teaching/examination at Aarhus University takes place in Danish and English, although other languages may be used when appropriate.

3 INFORMATION ON THE LEVEL AND DURATION OF THE QUALIFICATION

3.1 Level of qualification
Master's degree at NQF/EQF Level 7 referring to Second Cycle in the Bologna QF

3.2 Official duration of programme in credits and/or years
120 ECTS

3.3 Access requirements
Admission to the Master of Science requires a completed Bachelor of Science. Applicants with other qualifications may be admitted after an assessment of their qualifications.

4 INFORMATION ON THE PROGRAMME COMPLETED AND THE RESULTS OBTAINED

4.1 Mode of study
Full-time.

4.2 Programme learning outcomes
The degree programme expands the knowledge acquired in the Bachelor's degree programme in physics.

4.3 Programme details, individual credits gained and grades/marks obtained
Please refer to the enclosed transcript of records

4.4 Grading system and, if available, grade distribution table
http://ufm.dk/en/education-and-institutions/the-danish-education-system/grading-system

4.5 Overall classification of the qualification (in the original language)
Not applicable for Danish qualifications

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to further study
The candidatus(a) degree qualifies students for a professional career and scientific work e.g. for a doctorate or the PhD (ph.d.) degree.

5.2 Access to a regulated profession (if applicable)
Not applicable

6 ADDITIONAL INFORMATION

6.1 Additional information

Aarhus University offers unique, alternative opportunities for research and education cutting across many different subjects, for the benefit of both students and researchers, as well as the authorities and the business community. These interdisciplinary combinations provide exceptional opportunities. Aarhus University combines quality in its services with diversity - a diversity that also makes sure that the university is in wide-reaching contact with all the important sectors of society.

Aarhus University has an international focus and makes targeted efforts to attract researchers and students from abroad.

Research and education

Academic values form the basis for all activities at Aarhus University. Via curious research, critical analysis and ongoing debate, researchers and students endeavour to find new ways to gain insight, understanding and education for the benefit of society as a whole. The university consists of four main academic areas. Combined, they cover the entire research spectrum - basic research, applied research, strategic research and research-based advice to the authorities. In all degree programmes, research and education are closely connected, and the research-based instruction - including teaching that spans the main academic areas - ensures the depth of the degree programmes.

A visionary university

The mission of Aarhus University is to ensure and develop knowledge, welfare and culture through research and research-based education, knowledge dissemination and external advice. The vision of Aarhus University is to belong to the elite of universities and to contribute to the development of national and global welfare via outstanding research and world-class degree programmes. The values of Aarhus University are based on the ethical challenges regarding freedom and independence that are described in the Magna Charta of European Universities. Staff and students at Aarhus University work enquiringly and critically, in open and dynamic interaction with the surrounding world.

6.2 Further information sources

For further information on this degree programme, please refer to http://studieguide.au.dk/en and the Aarhus University web site http://www.au.dk/en.

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7 CERTIFICATION OF THE SUPPLEMENT

7.1 Date
15 February 2024

7.2 Signature

Erik Østergaard Jensen

7.3 Capacity
Dean of Aarhus University Faculty of Natural Sciences

7.4 Official stamp or seal

8 INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

Please see the attached description of The Danish Higher Education System of April 2016