Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

FAKULTÄT
FÜR MATHEMATIK, INFORMATIK
UND NATURWISSENSCHAFTEN

FINN WELZMÜLLER

BACHELOR OF SCIENCE (B.SC.)
PHYSICS

EXAMINATION CERTIFICATE

English translation of the original German document

Mr. Finn Welzmüller, born on 17 November 1997 in Hamburg, successfully passed the Bachelor's examination in Physics on 4 July 2019.
The following grades were achieved in the Bachelor's exam, in line with the subject-specific requirements of 6 March 2013 for Physics at the Universität Hamburg:

Introductory physics

Orientation unit	pass	(b)
Physics I (Mechanics and Thermodynamics)	sufficient	(4,0)
Physics II (Electrodynamics and Optics)	satisfactory	(3,3)
Physics III (Quantum physics and statistical physics)	good	(2,0)
Physics IV (Solid-state physics)	satisfactory	(3,3)
Nuclear and particle physics (Physics V)	sufficient	(3,7)
Atoms, molecules and laser physics (Physics VI)	good	(2,0)
Theoretical Mechanics and Electrodynamics (Th. Ph. I)	good	(2,0)
Quantum mechanics I (Th. Ph. II)	sufficient	(4,0)
Statistics and thermodynamics (Th. Ph. III)	satisfactory	(3,0)
Advanced laboratory course	good	(1,7)
Physics laboratory I for science students	pass	(b)
Physics laboratory II for science students	pass	(b)
Proseminar 11 - experimental physics	excellent	(1,0)
Proseminar 13 - experimental physics	excellent	(1,0)

Introductory mathematics

Mathematics I	sufficient	(4,0)

Grading system - per component: 1,0 / 1,3: excellent; 1,7 / 2,0 / 2,3: good; 2,7 / 3,0 / 3,3: satisfactory; 3,7 / 4,0: sufficient
Grading system - GPA: 1,0 to 1,50: excellent; 1,51 to 2,50: good; 2,51 to 3,50: satisfactory; 3,51 to 4,0: sufficient
* = in original language

Mathematics II	sufficient	(4,0)
Mathematics III	sufficient	(3,7)
Mathematics IV	sufficient	(4,0)
Complementary subject		
Astronomy and astrophysics I	satisfactory	(2,7)
Astronomy and astrophysics II	excellent	(1,0)
General professional skills		
Scientific computation	pass	(b)
Final oral exams		
Oral examination in experimental physics	good	(2,3)
Oral examination in theoretical physics	excellent	(1,0)
Final Bachelor Module		
Bachelor thesis Calculating magnetic fields in the intergalactic medium using Faraday-rotation (in original language)	**good**	**(1,7)**
Final GPA	**good**	**(2,14)**

Hamburg, 12 July 2019

Signature of the Examination Office

Universität Hamburg (Siegel) 62 Fakultät Mathematik, Informatik und Naturwissenschaften

ECTS Grade Distribution Table Overall Grade

Department/degree	excellent	good	satisfactory	sufficient
Phys/Bachelor	21,96%/65/21,96%	60,81%/180/82,77%	17,23%/51/100,00%	0,00%/0/100,00%

As a rule, there is a minimum of 50 graduates per cohort; if applicable, a cohort with fewer graduates is indicated. A cohort or reference group is comprised of three academic years. The overall grades for the department-degree combination that are used for official statistics form the basis for the designation of a percentile ranking. The percentage, the absolute value, and the cumulative frequency are indicated.

Grading system - per component: 1,0 / 1,3: excellent; 1,7 / 2,0 / 2,3: good; 2,7 / 3,0 / 3,3: satisfactory; 3,7 / 4,0: sufficient
Grading system - GPA: 1,0 to 1,50: excellent; 1,51 to 2,50: good; 2,51 to 3,50: satisfactory; 3,51 to 4,0: sufficient
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