

# Curriculum Vitae

## Philipp BRAUN

<b>Date of Birth:</b>	12 November 1985	<b>Address:</b>	<b>Phone:</b> +49 176 63651644
<b>Place of Birth:</b>	Neumarkt i.d.Opf	Marienroggenweg 51	<b>Email:</b> <a href="mailto:braunp@in.tum.de">braunp@in.tum.de</a>
<b>Nationality:</b>	German (EU citizenship)	18147 Rostock	

### EDUCATION

OCT 2011	<b>M.Sc., Applied &amp; Engineering Physics</b>	Technische Universität München
- SEP 2013	<b>Laurea Magistrale, Materials Science</b>	University of Turin
(expected)	<b>Master 2, Chemistry</b>	University of Montpellier 2
	CURRENT GPA: 1.7 (German grades range from 1.0 (excellent) to 5.0 (fail))	
	Erasmus Mundus Master programme Materials Science Exploring Large Scale Facilities (MaMaSELF) leading to a triple degree <a href="#">  Detailed List of Exams</a>	
OCT 2009	<b>B.Sc., Informatics</b>	Technische Universität München
- SEP 2012	<b>Application Area: Physics</b>	
	GPA: 1.8, Thesis title: "Probe position refinement in X-ray ptychography"	
	Advisor: Prof. Thomas Huckle (TUM Informatics), Pierre Thibault, PhD. (TUM Physics) <a href="#">  Detailed List of Exams</a>	
OCT 2008	<b>B.Sc., Physics</b>	Technische Universität München
- SEP 2011	<b>Specialization Area: Condensed Matter Physics</b>	
	GPA: 2.2, Thesis title: "Development and analysis of a momentum spectrometer for charged particles emitted after the photo double ionization of ethyne and ethylene"	
	Advisor: Dr. Thorsten Weber (LBNL), Prof. Peter Müller-Buschbaum (TUM) <a href="#">  Detailed List of Exams</a>	
APR 2006	<b>Associate Engineer, Computer Systems and Automation</b>	Siemens Technik Akademie
- MAR 2008	GPA: 1.0	Erlangen, Germany
		<a href="#">  Detailed List of Exams</a>
MAY 2005	<b>Abitur,</b>	Melanchthon Gymnasium
	GPA: 1.4	Nuremberg, Germany

### WORK EXPERIENCE

FEB 2013	<b>Research Intern</b>	cSAXS beamline, PAUL SCHERRER INSTITUTE
- SEP 2013	<b>Coherent Diffractive Imaging</b>	Villigen, Switzerland
(expected)	Masters Student. Mixed State Reconstruction with X-Ray Ptychography, Advisors: Dr. Andreas Menzel, Dr. Pierre Thibault	
JUL 2012	<b>Research Intern</b>	Coherent Imaging Division, CFEL, DESY
- SEP 2012	<b>Coherent Imaging with FELs</b>	Hamburg, Germany
	Participant in the DESY Summer Programme. 3D phase retrieval algorithms. Binary classification of single-particle diffraction patterns from FELs. Advisors: Dr. Anton Barty, Prof. Henry Chapman	
JUL 2011	<b>Research Intern</b>	AMOS Group, LAWRENCE BERKELEY NATIONAL LABORATORY
- SEP 2011	<b>Atomic and Molecular Physics</b>	Berkeley, U.S.
	Participant in the DAAD RISE programme. Development, simulation and resolution analysis of a 3D momentum spectrometer for charged particles emitted after the photo double ionization of ethyne and ethylene. Help with setup of the experiment at beamline 10.0.1 of the Advanced Light Source. Advisor: Dr. Thorsten Weber	
OCT 2008	<b>Software Engineer</b>	INTERASCO GmbH
- NOV 2009	<b>IT Solutions and Services</b>	Munich, Germany
	Helped defining the architecture for a newly started long term project. Developed an easy to use multithreading framework. Coached the team in using the framework and provided thorough documentation.	
APR 2008	<b>Junior Developer</b>	SWINTON COLLONADE LTD.
- OCT 2008	<b>Insurance and Financial Services</b>	Manchester, U.K.
	Developed enterprise scale object oriented web applications. Developed website frontend with javascript, DHTML, webservices. Monitored website performance and troubleshot defects out of regular working hours.	
OCT 2007	<b>Software Developer Intern</b>	SIEMENS STANDARD DRIVES
- MAR 2008	<b>Manufacturing &amp; Automation</b>	Congleton, U.K.
	Developed an application to streamline tracking of defective circuit boards and increase item throughput in the adjoining factory. Developed an application to automate a small assembly line.	

## PUBLICATIONS

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- Photo double ionization of acetylene and subsequent fragmentation pathways, B. Gaire, **P. Braun** et al., Bulletin of the American Physical Society 57 (2012)
- Dissociative and non-dissociative photo double ionization of hydrocarbon molecules:  $C_2H_4$  and  $C_2H_2$ , B. Gaire, **P. Braun** et al., Bulletin of the American Physical Society 57 (2012)
- Ultrafast Energy Transfer between Oxygen Molecules, F.P. Sturm, B. Gaire, I. Bocharova, **P. Braun** et al., Bulletin of the American Physical Society 57 (2012)

## COMPUTER SKILLS

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Programming:	WEB PAGES (Expert), WINDOWS APPLICATIONS (Expert), Qt (Basic) DATABASE DESIGN (Expert)
Programming Languages:	C# (Expert), VISUAL BASIC (Expert), C/C++ (Expert) SML (Intermediate), SQL (Intermediate), PERL (Basic), HTML (Intermediate), Python (Intermediate)
Computer Algebra Programs:	MATHEMATICA (Intermediate)
Operating Systems:	WINDOWS (Expert), LINUX (Intermediate)
Office:	MS EXCEL, Office-Suite

## LAB EXPERIENCE

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BASIC LAB COURSE 1	- Oscillations and chaos - Capillary viscosimeter - Determination of molar mass - Constitutive equation of real gases - Determination of sonic velocity - Dissociation and freezing point depression of $KNO_3$
BASIC LAB COURSE 2	- Determination of electron charge - Bridge circuit - Creation of ultra high vacuum, measurement of vacuum pressure - Measurement of transmission curves on the oscilloscope - Characteristic lines of transistors - fuel cell characteristics
BASIC LAB COURSE 3	- measurement and handling of radioactive materials - measurement of electromagnetic fields - diffraction and refraction of light - X-rays: characteristic and continuous spectrum, generation - geometrical optics: lenses, lense systems, principal plane, autocollimation, focal distance - Franck-Hertz-Experiment
ADVANCED LAB COURSE	- x-ray fluorescence spectrometry - atomic force microscopy - molecular motors. fluorescence microscopy - plasma interferometry, He-Ne lasers, laser resonator, Fabry-Perot-interferometer - organic photovoltaic cells - surface plasmons - Mössbauer Effect - Lasers and nonlinear optics - Fourier transform holography
BACHELOR THESIS	- synchrotron radiation - 3rd generation synchrotrons

## MILITARY SERVICE

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JUL 2005	Private First class at GERMAN AIRFORCE, Landsberg a. Lech
- MAR 2006	Air raid defences

## LANGUAGES

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ENGLISH:	Fluent
SPANISH:	C1 Level
ITALIAN:	A2 Level
FRENCH:	A1 Level

INTERESTS AND ACTIVITIES

Technology, Philosophy of Science, University Choir, Programming, Travelling

# MaMaSELF programme

## Grades

EXAM	GRADE	CREDITS
<b>Courses at TUM WS11 &amp; SS12</b>		
Advanced Lab Course for Master Students	pass	5
Advanced Theoretical Physics	2,3	10
Modern X-Ray Physics 1	1,7	5
Seminar: Modern X-Ray physics	pass	4
Physics with Neutrons 2	2,0	5
Quantum Optics 1	1,7	5
Quantum Optics 2	1,3	5
Nonlinear Dynamics and Complex Systems 1	2,0	5
Introduction to Software Engineering	1,3	6
Machine Learning I	1,7	6
Italian A1.1 + A1.2	2,7	6
Exploring Condensed Matter with photons: atomic structure, electron states and dynamics	1,3	5
<b>Additional courses</b>		
Italian A2.1+A2.2	2,7	6
Physics with Neutrons 1	2,3	5
Ultracold Quantum Gases 1	2,3	5
Ultracold Quantum Gases 2	3,0	5
Plasmonics: Fundamentals and Applications	2,3	5
<b>Courses at University of Turin WS12</b>		
Organic Materials with Lab	30/30	6
Selection and use of materials	Jan 2013	6
Advanced Crystallography	28/30	6

# B.Sc. in INFORMATICS

Grades		GRADE	CREDIT HRS
SEMESTER	EXAM		
Winter 08	Lab Course Part 1	passed	5
	Experimental Physics 1	3,3	9
	Introduction to Informatics 1	1,7	6
	Fundamentals of Programming (Exercises & Laboratory)	1,7	6
	Introduction to Computer Organization and Technology - Computer Architecture	2,3	8
	Discrete Structures	3,3	8
	Linear Algebra for Informatics	1,0	8
Summer 10	Intercultural Aspects of Working in Global Teams	1,0	4
	Basic theoretic informatics	2,7	8
	Fundamentals of Databases	2,0	6
	Discrete Probability Theory	2	8
	Fundamentals of Algorithms and Data Structures	2,0	6
Winter 10	Introduction to Informatics 2	2,0	6
	Basic Principles: Operating Systems and System Software	2,3	6
	Lab: Computer Organization and Computer Architecture	1,0	8
	Analysis for Informatics	1,7	8
	SET Tutor	passed	2
	Theoretical Physics 4 (Thermodynamics & Statistical Physics)	1,7	9
	Numerical Programming	2,0	6
Summer 11	Introduction to Software Engineering	1,3	6
	Introduction to computer networking and distributed systems	2	6
	Seminar Course: History of Computational Science, Vision, and Medical Science	1,3	4
	Seminar Course: Inside Google - Algorithms for (social) networks	3,0	4
Winter 11	Fundamentals of Artificial Intelligence	3,3	5
	Machine Learning I	1,7	6
	Workshop: Feasibility and its consequences	1,0	1
	Programming Lab: Lego Mindstorms	1,7	10
	Seminar: What is space?	1,7	2
Summer 12	Bachelor Thesis	1,0	12
	Bachelor Colloquium	1,0	3
Total (weighted)		1.8	185

## B.Sc. in PHYSICS

Grades			
SEMESTER	EXAM	GRADE	CREDIT HRS
Winter 08	Experimental Physics 1	3,3	9
	Mathematics for Physicists 1	1,0	8
	Mathematics for Physicists 2	3,7	8
	Lab Course Part 1	passed	5
	Spanish Course B2	1,7	4
Summer 09	Theoretical Physics 1 (Classical Mechanics)	3,0	8
	Experimental Physics 2	3,7	9
	Mathematics for Physicists 3	3,0	8
	Lab Course Part 2	passed	5
Winter 09	Experimental Physics 3	3,3	8
	Theoretical Physics 2 (Electrodynamics)	3,3	8
	Introduction to Scientific Programming	passed	4
	Lab Course Part 3	passed	5
	Introduction to current topics in scientific re- search	passed	2
	Mathematics for Physicists 4	2,7	8
Summer 10	Experimental Physics 4	3,0	8
	Theoretical Physics 3 (Quantum Mechanics I)	2,3	9
	Chemistry for Physicists	2,0	6
Winter 10	Quantum Mechanics II	3,3	8
	Condensed Matter Physics I	1,7	9
	Theoretical Physics 4 (Thermodynamics & Sta- tistical Physics)	1,7	9
	Introduction to Nuclear, Particle and Astro- physics	2,3	8
	Advanced Lab Course	passed	6
Summer 11	Condensed Matter Physics II	1,3	9
	Bachelor Thesis Physics	1,3	12
	Seminar Spin Mechanics and Spin Dynamics	passed	4
	Bachelor Colloquium Physics	1,3	3
Total (weighted)		2.2	189

# Associate Engineer in COMPUTER SYSTEMS AND AUTOMATION

## Grades

EXAM	GRADE
<b>Mathematics</b>	<b>1.0</b>
<b>Electrical Engineering</b>	<b>1.0</b>
<b>Software Engineering</b>	<b>1.0</b>
Methods of Software Engineering	1.3
Object oriented software engineering	1.0
Object oriented user interface programming	2.0
C and C++ programming languages	2.0
Design Patterns	1.0
<b>Operating Systems and Network Programming</b>	<b>1.0</b>
Fundamentals of operating systems	1.7
Real time operating systems	1.0
Web site programming	1.0
Network architecture and protocols	2.0
<b>Computer Organization and Technology - Computer Architecture</b>	<b>1.3</b>
Digital signal processing	2.0
Microcomputer systems	1.0
Algorithms and Data structures	1.3
Control engineering	2.0
Feedback control systems	1.7
<b>Relational Databases</b>	<b>1.7</b>
<b>English</b>	<b>1.0</b>
<b>Practical Semester</b>	<b>1.0</b>
GPA	1.0