Cover sheet to application

1 Personal data application

Name, first name	Atul Singh Arora
subject area	Physics@example.com
personal ID	91570858
University	
offer country	India
Scholarship programme	WISE-Praktika für indische Sudierende, 2015
Scholarship period	May 4, 2015 to Jul 31, 2015
Resp. DAAD Unit	

2 Documents for application

which you upload your application documents are listed below.

Type of document	Name of the document
CV	CVatul
Project proposals	ProjectProposal
Certificate	invitation
Certificate	approvalForm
Certificate	marksheet
Certificate	enrolementCertificate
Certificate	noc
Certificate	passportPic

Application

1 General information

Scholarship programme	WISE-Praktika für indische Sudierende, 2015
Status	Students

2 Details for application

Note on completing the application form:

* Compulsory field (must be completed).

(*)Dependant compulsory field (must be completed if at least one other field in this section is completed).

1

Family name *	Singh Arora				
if applicable, name at birth	Atul				
Academic title	Select title...				
First name(s) *	Atul				
Date of birth *	20.11.1991	Place of birth *	New Delhi	Country of birth*	India
Nationality *	Indian	2. Nationality	Select nationality ...		
Form of address *	Mr	Marital status *	single		
Number of children	0				

2 Details for application

2 Correspondence address

(Address at which you can be contacted at all times)

Additional address information 1	4317/3 Ansari Road
Additional address information 2	Darya Ganj
Additional address information 3	New Delhi
Additional address information 4	110002
c/o	Tejinder Kaur Arora
Street/PO box *	Ansari Road, 110002
Postcode	110002
Town *	Delhi
Country *	India
Telephone	
Mobile number	+918699413350
Fax	
E-mail *	to.AtulArora@gmail.com

2 Details for application

3 Name and address of next of kin who should be contacted in an emergency.

yes (●) no ( )

Name	Ms. Tejinder Kaur Arora
First name	Tejinder
Additional address information 1	4317/3 Ansari Road
Additional address information 2	Darya Ganj
c/o	
Street/PO box	Ansari Road, 110002
Postcode	110002
Town	Delhi
Country	India
Telephone	
Mobile phone	+919999872235
Fax	
E-mail	tejinder@modernsignco.com

4

2 Details for application

Please enter your destination institution / university

Planned destination institution 1 *

Destination country * Germany Town * Siegen

Institution * Universität Siegen

Other institution ☐

Subject group * Math / Science

Study subject * Physics

Planned destination institution 2 alternatively ○ additionally ○ None ◉

5 Chosen discipline / chosen research field

Subject group * Math / Science

Study subject * Physics

Explanation * I find it interesting, primarily because various diverse phenomena can be described and even predicted on the basis of very few assumptions.

6 What made you choose your host institution/host university? * Dr. Guehne's work was impressive and matched my interest. Therefore I chose the university he's working in.

Is your stay part of a cooperation agreement? *

yes ○ none ◉

7 Do you already have contacts there? * yes ○ none ◉

With Whom?

2 Details for application

8 Do you have an invitation from the host/destination institute? *

yes (●) No ( )

9 Duration of requested funding: from * 04.05.2015 to * 31.07.2015

10 Short description of research/study/work project *

Quantum information with modular variables
The predictions of quantum mechanics differ in a fundamental way from those of classical physics or more general realistic (hidden variable) theories. These predictions are accurately confirmed on a microscopic level with photons and atoms, but similar tests with more massive systems are still challenging. In this project we will investigate, how modular variables can further be used for probing genuine quantum effects.

11 Secondary school *

Type of qualification * Senior Secondary (+2)

Date * 31.03.2010 City / Province * New Delhi

Result * 80%

Length of school attendance

from * 01.04.1996 to * 01.03.2010

12 Completed examinations (if applicable), e.g. intermediate examinations, final examinations, doctorate, including postgraduate studies. (*)

2 Details for application

Entry 1

Institution *	Indian Institute of Science Education and Research, Mohali		
Period: from	01.08.2011	to	01.05.2016
Subject group	Math / Science		
Study subject	Physics		
Type of exam	Master's degree (or equivalent)		
Result	Programme in progress, Current CPI: 9.2		

new entry | Delete this entry

13 University/institution currently/last attended

Institution *	Indian Institute of Science Education and Research, Mohali	
Type study programme *	BS-MS dual degree	
Major *	Subject group *	Math / Science
	Study subject *	Physics
2nd subject	Subject group	Select group...
	Study subject	(Please select first group of subjects.)
3rd subject	Subject group	Select group...
	Study subject	(Please select first group of subjects.)

14 Previous study/research/working stays or other activities abroad

2 Details for application

Entry 1

Country	Denmark		
Institution, City / Province	Sonderborg		
Period: from	06.08.2009	to	13.08.2009
Purpose	Climate and Innovation Camp, BGY		

new entry | Delete this entry

15 Previous and current scholarships from the DAAD or other organisations * yes (•) none ( )

Funding organisation / programme *	from *	to *
DST India/KVPY	2011	2015

16 Will you be funded by another organisation during the planned funding period or have you applied for other funding for this period? *

yes ( ) no (•)

From which?

Organisation *	Status	from *	to *
	Select status...		
	Select status...		
	Select status...		

2 Details for application

17 Language skills (not documented)

Language	very good	good	average	poor
English	○	●	○	○
other language(s)	○	●	○	○
other language(s)	○	○	○	●

Description of other language(s): Hindi, Punjabi

18 What other extracurricular activities/interests would you like to mention?

Electronics/Programming, Guitar, Debating

19 Professional goal: Understand Quantum Physics

20 Other comments/information you think might be of relevance to your application.

2 Details for application

21

Declaration of consent *

I hereby confirm that the above information is correct and complete. I agree to notify the German Academic Exchange Service immediately of any changes or amendments, particularly if I am offered another grant/scholarship. I have read and taken note of the information on applying for grants/ funding and the comments on data collection. I am aware that I am responsible for ensuring the completeness of my application.

I agree to my application documents being passed on to any bodies and organisations that are concerned with my application in the selection process. I agree to my application documents being kept by the DAAD.

yes ☒

I hereby consent to the DAAD passing on personal data (e-mail address, date of birth, family name, first name, sex) to an evaluation institution which it has appointed for the purpose of carrying out scientific evaluations and assuring the quality of its funding programmes, insofar as this is necessary.
(E-mail, date of birth, name, first name, gender) can be transmitted to a person appointed by him evaluator.

yes ◉ no ○

22

I agree to

- - my name
- date of birth
- subject
- destination / home country and university / institution
- requested grant/scholarship,

being passed on to the German university / institution.

yes ◉ no ○

Important notice

Please save the form after editing on your computer. Please use the "save as" option to be aware of the file location of the latest edited version of the application form on your computer. You can return to the portal to upload the edited form and continue your application by clicking the following link.

Open DAAD Portal

2 Details for application

was born on November 20, 1991
resides in 4317/3 Ansari Road Darya Ganj, New Delhi
☎ *+91 89681 72389*
✉ *toAtulArora@gmail.com*

http://github.com/toAtulArora
http://KnowledgePayback.blogspot.com

Atul Singh Arora
ətul siŋh ərəʊraː

Objective

..for now To get a summer internship to explore Quantum Physics.

..in general To contribute to expanding our knowledge of nature.

Education

Present **BS-MS Dual Degree**, *Indian Institute of Science Education and Research*, Mohali, CPI: *9.2/10*.

Semester I: (8.5/10) Mechanics, Chemistry of elements and chemical transformations, Cellular basis of life, Symmetry, Language Skills B, Introduction to Computers, Physics Lab I, Chem Lab I, Bio Lab I

Semester II: (8.6/10) Electromagnetism, Atoms Molecules and Symmetry, Gene expression and development, Analysis in one variable, Hands-on electronics, History of science, Physics Lab II, Chemistry Lab II, Biology Lab II

Semester III: (8.8/10) Waves and optics, Spectroscopic and other physical methods, Genetics and evolution, Curves and surfaces, Introduction to Astrophysics, Workshop Training, Physics Lab III, Chemistry Lab III, Biology Lab III

Semester IV: (9.7/10) Thermodynamics and statistical physics, Energetics and dynamics of chemical reactions, Behaviour and ecology, Probability and statistics, Introduction to Quantum Physics, Philosophy of science, Physics Lab IV, Chemistry Lab IV, Biology Lab IV

Semester V: (10/10) Classical Mechanics, Quantum Mechanics, Electrodynamics, Advanced Optics Lab, Reason and Rationality

Semester VI: (9.6/10) Statistical Mechanics, Atomic and Molecular Physics, Quantum Computation, Advanced Electronics and Instrumentation Lab, Quantum Field Theory

Semester VII (current): Solid State Physics, Nuclear and Particle Physics, Nuclear Physics Lab, Physics of Fluids, Quantum Principles and Quantum Optics, Radiative Effects and Renormalization Group in Relativistic Quantum Field Theory

2010 **CBSE 10+2**, *Sardar Patel Vidyalaya*, New Delhi, *80%*.
Physics, Chemistry, Math, Computer Science, English

2008 **CBSE X**, *Sardar Patel Vidyalaya*, New Delhi, *93%*.
Science, Maths, Social Science, English, Hindi, Information Technology

Experience (Academic)

Summer 2014 **Intern**, *Indian Institute of Science Education and Research*, Mohali.
The objective was to device ways of using a universal quantum computer to perform simulations of quantum phenomena itself, with 'practical' resource requirements. The project involved reading of books and papers, followed by reproducing the results of a paper using a quantum computer simulator, which was written from scratch and an independent discovery of a simple quantum algorithm to simulate mixed states (this result was however already known). I was guided by Prof. Arvind and had helpful discussions with Dr. Sudipta Sarkar and Dr. Abhishek Choudhury.

Winter 2013 **Intern**, *Indian Institute of Science Education and Research*, Mohali.
Studied Mechanics from Landau's first volume (excluding the last chapter) and covered parts of Mathematical Methods from a book on the said topic by Dennery and Krzywicki. I was guided by Prof. Jasjeet Bagla and Prof. Sudeshna Sinha.

Monsoon 2013 **School**, *National Centre for Biological Sciences*, Bangalore.
Participated in a Monsoon School on Physics of Life where we treated selected biological phenomena with physical rigour, headed by Dr. Mukun Thattai

Summer 2013 **Intern**, *National Physical Laboratory*, New Delhi.
Worked on setting up an experiment to study dynamics of a two dimensional magnetic dipole lattice, with Dr. Ravi Mehrotra.

Winter 2012 **Intern**, *Indian Institute of Science Education and Research*, Mohali.
Studied Quantum Mechanics from J.J. Sakurai, under the guidance of Prof. Jasjeet Bagla and created a corresponding report.

Summer 2012 **Intern**, *Indian Institute of Science Education and Research*, Mohali.
Studied Group Theory and Linear Algebra for understanding Symmetry, under Prof. Kapil Hari Paranjape.
A brief introductory understanding of the Knot Theory was also undertaken. LaTeX was learnt during this period, to be able to efficiently communicate via the internet.

Summer 2011 **Intern**, *Indian Institute of Technology*, Bombay.
Worked on Image Recognition techniques using OpenCV, for Yarn Fault detection under the supervision of Prof. Anirban Guha.
This was an extension to an IIT alumni's Masters thesis. The work was done using Visual Studio, C++ and involved understanding of OpenCV and the idea behind various algorithms, to be able to solve the problem at hand.

Projects

Sem VI 2014 **Drawdio**, What is Drawdio: "Imagine you could draw musical instruments on normal paper with any pencil (cheap circuit thumb-tacked on) and then play them with your finger. The Drawdio circuit-craft lets you MacGuyver your everyday objects into musical instruments: paintbrushes, macaroni, trees, grandpa, even the kitchen sink... ". This project was originally created at the MIT Media Lab; I simply reproduced a version of this for the National Science Day, 2014.

Summer 2013 **Nazar Band**, A face recognition system built using OpenCV with the aim of automating the locking and unlocking of doors, eliminating the need of keys.

Sem III 2012 **Opportunity Cell Website**, Team Project, A centralized web portal for the Opportunity Cell of IISER Mohali.

Sem III 2012 **Fly Count Assister**, For easing the task of counting flies (Biology experiment), this application was written in Python and used extensively. With just two buttons on the keyboard, and the voice support, the counting process was made much more efficient.

Sem III 2012 **NaveenTantra**, Team Project, An Online Election system, based on a novel fraud prevention technique, created using Javascript, PHP and mySQL.

Summer 2012 **Telescope**, Team Project, Newtonian Reflection Telescope for observing Transit of Venus.

Sem II 2012 **Capacitive Touch Sensor**, Sensitive enough to measure changes in PicoFarads, developed for the Science Day.

2010-11 **Chatur Chaalak**, Developed with the aim of application in robotics, this project was designed to control the torque and speed of stepper motors, with precision, independently. This was implemented using C as the language and Atmel AVR as the platform.

2010 **Live GSM**, This was an attempt at controlling a phone using a microcontroller, to be able to remotely control devices, using DTMF communication protocol over voice calls.

Class XII 2010 **3D Modelling and Animation**, Imitated the '21st Century FOX' animation and customized it to read 'XII class presents', for a class presentation, using the popular 3D cinema creation software, Maya.

Class XI-XII 2009-10 **Space Race**, This game was developed using OpenGL to ensure cross-platform support and as a transition to the open world. Apart from the 3D-graphics, this game had Newtonian physics implemented using a point particle approach, derived from an open-source game.

Class XI 2009 **Robotic Rescue Vehicle (RRV)**, It was designed using auto-mobile parts such as bicycle chains and sprockets, wiper motors, car batteries, a web-camera, and an ordinary PC, which gave it a unique look. It could be moved around wirelessly using a laptop which gave a live video feed from the robot, ideal for rescue operations.

Class X 2008 **Math Project**, A calculator built using micro-controllers, to verify the property $(a+b)(a-b) = a^2 - b^2$. It was a battery operated device, with an LCD screen and used an 89S52 to process.

Class IX 2006 **ALive City 2 - DirectX 9.0**, My second attempt at game making; this was developed without using any game engines, while the game itself was controlled using a USB steering wheel, built by me, based on an open-source application.

Class VIII 2005 **Motion Detection - Image Processing**, This program was developed to save frames of a video feed, only when motion is detected, ideal for surveillance.

Class VIII 2005 **ALive City - DirectX 8.0**, My first computer graphics 3D project, a simple racing game where the player could put his/her own picture, right on the car.

Class VII 2004 **Edge Detecting Robot**, Built using stepper motors and a microprocessor, this vehicle was programmed to detect edges of a table using infra red sensors and turn to avoid falling.

Class VII 2004 **AT Keyboard Interface**, Built using the 8051 series of Microcontrollers and an LCD, this device was developed to serve as a low cost portable typing tutor for kids. It was programmed using Bascom, a basic compiler.

Class VII 2004 **School Bell Scheduler 2**, This application was re-written in Visual Basic.NET to automate ringing of school bells, given the schedule, like it's first version. It used UART for securer communication and was installed in Srijan School, Model Town, New Delhi.

Class VI 2003 **School Bell Scheduler**, A program, written in Visual Basic 6, for automating the ringing of school bells. The user simply needs to specify the schedule.

Recognition

2014 Amongst the highest scorers in the second semester of the academic session 2013-14

2014 Awarded a Certificate of Merit for the best academic performance in the first semester of the academic session 2013-14

2012 Capacitive touch won the Best Physics Demonstration, at the Science Day 2012, organized by IISER Mohali

2011 Was awarded the KVPY fellowship, for my work on Stepper Motor control, Chatur Chaalak

2010 Was awarded the First position in Senior programming, with my Team member, in an inter-school programming competition, a part of Access, an annual Computer Symposium, Access, organized by Modern School

2010 I was selected as one of the participants for attending the Bright Green Youth, Denmark, an international climate summit for the youth, on the basis of my performance in the National Science Fair and a personal interview. In DK, our team made it to the top 14 projects

2009 The Robotic Rescue Vehicle was awarded the first position in the Delhi region and second position in the Northern region, at the National Science Fair, held at the National Science Centre, New Delhi

2005 ALive City won the first place in the open Software Display, at an inter-school Computer Symposium, Access, an annual event organized by Modern School, Barakhamba Road, New Delhi

2004 ALive City qualified the open Software Display, at the inter-school Computer Symposium, Access

2004 Displayed the Robotic Rescue Vehicle at an interschool competition and secured the third position, even though due to a component failure, the robot failed to work when it was judged

2003 Displayed the School Bell Scheduler at the National Convention 2003, Computer Society of India, IIT-Delhi

Languages

Native **Punjabi**

Fluent **English** *Formally studied till Sem I, BS-MS*

Fluent **Hindi** *Formally studied till class X*

Computer Skills

Familiar OSs Windows: XP, Vista, 7, 8; Linux: Ubuntu, OpenSuse, Slackware

Languages Basic, C, C++, C#, Python, Javascript, SQL, HTML, PHP, LaTeX

Applications Visual Studio, Sublime Text, Microsoft Office (Word, Powerpoint, Outlook, OneNote, Excel), CorelDraw, Git, Sony Vegas, Autodesk Maya, GNU plot, SolidWorks, FL Studio, Sony Sound Forge

Extra-Curricular Activities

Playing the Guitar

Programming and Electronics

Member of the Debating Society

Playing the Tabla

Red I in Taekwondo

Quantum information with modular variables

Atul Singh Arora

October 31, 2014

I am interested in exploring the foundations of quantum mechanics. This I find especially interesting because the very postulates of the theory lead to some striking classically unexpected results which have been verified experimentally, themselves aren't fully consistent; the measurement postulate and the unitary time-evolution. Action at a distance like effects, which arise form quantum correlations slash entanglement therefore are at the heart of the theory. These effects when carefully studied lead to predictions that act as tests for a system to be in a state that can't be described classically [arXiv:0811.2803].

Experimentally these tests have been performed on photonic and atomic systems. However, performing these tests on massive systems is still an area of research. A proposed scheme for such tests is the use of modular variables (which I'll describe shortly) of macroscopic continuous variable systems [Phys. Rev. Lett. 112, 190402 (2014)]. The objective of the project would be to use modular variables to understand the origin of quantum effects, viz. effects peculiar slash characteristic to quantum mechanical objects. These tests may even be used to quantify entanglement in such systems and prove to be an interesting route to studying the foundations of the subject.

Modular variables in simple terms may be understood as variables that are bounded, which makes them 'nice'. In continuous systems, variables like position and momentum (x and p) are unbounded. Use of modular variables such as $\sin(x)$ and $\cos(p)$, which in fact can be measured, maybe used in the aforesaid context instead.

UNIVERSITÄT SIEGEN

Fakultät IV
Department Physik

Auskunft:

Prof. Dr. Otfried Gühne
Walter-Flex-Str. 3
57068 Siegen
Telefon +49 271 740-3707
Telefax +49 271 740-3807
E-Mail otfried.guehne@uni-siegen.de
www.uni-siegen.de/fb7/tqo

Siegen, 27. Oktober 2014

Universität Siegen ● Department Physik ● 57068 Siegen

To
Atul Singh Arora,
4317/3 Ansari Road,
Darya Ganj,
New Delhi - 110002
INDIA

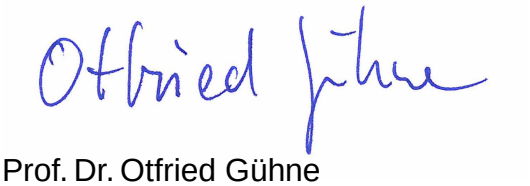
Invitation for Atul Singh Arora

Dear Atul Singh Arora,

hereby I invite you to visit our group in the framework of a Working Internship in Science and Engineering (WISE) from the German Academic Exchange Service (DAAD) between May and July 2015. If you obtain the grant, I will take care of the supervision of your project and we will provide you with office space and access to the library as well as computation and data facilities.

I hope that your application for the grant is successful.

With best regards,



Prof. Dr. Otfried Gühne

DAAD Deutscher Akademischer Austausch Dienst
German Academic Exchange Service
Section 425 - South Asia
Contact: Susanne Scherzer (scherzer@daad.de)

Approval Form by German Host (Head of the Department)

WISE – Working Internships in Science and Engineering

I would like to involve an Indian student in my research work for the following time period in 2015:

Internship period: **05 May 2015 –- 27 July 2015**

German Supervisor:

Name: Prof. Dr. Otfried Gühne

University/ Research Institution: University of Siegen, Departmen of Physics

Address: Walter-Flex-Str. 3, 57068 Siegen, Germany

Telephone & Fax: Tel. ++49 271 740 3707, Fax ++49 271 740 3807

Email: otfried.guehne@uni-siegen.de

Student Applicant:

Name and Application number (PKZ): Atul Singh Arora PKZ: not applicable

Address: 4317/3 Ansari Road, Darya Ganj, New Delhi-110002

Telephone: +91 8699413350

Email: to.AtulArora@gmail.com

Subject/Specialization: Quantum Information Theory

Title of the research project: Quantum information with modular variables

Brief description of the research project (including notes on the experimental techniques used and possible tasks to be assigned to the research assistant):

The predictions of quantum mechanics differ in a fundamental way from those of classical physics or more general realistic (hidden variable) theories, which, for example, are manifested in the violation of various classical no-go theorems. These predictions are accurately confirmed on a microscopic level with photons and atoms, but similar tests with more massive systems are still challenging. Recently, an experimentally feasible approach for performing such tests has been proposed [Phys. Rev. Lett. 112, 190402 (2014)]. This scheme enables the measurement of modular variables of macroscopic continuous variable systems. In this project we will investigate, how modular variables can further be used for probing genuine quantum effects. This concerns, for example, the question to which extent correlations of modular variables violate a Leggett-Garg inequality or can be applied for tests of quantum contextuality. Furthermore, modular variables can be used for characterization and estimation of the quantum properties like entanglement of continuous variable states, which is a promising route for further application of modular variables in quantum foundations problems.

Is practical experience necessary? ___ Yes X No

Which other conditions does the applicant have to fulfill?

Basic knowledge about the theory of quantum computing

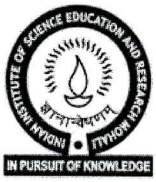
What knowledge of German is mandatory for the research internship(s)?

___ good ___ fair ___ poor X none

Universität Siegen
Naturwissenschaftlich-Technische Fakultät
Department Physik
Walter-Flex-Str. 3, 57068 Siegen

Date, signature of the German Host (Head of the department)

- Description of the research project can be mentioned either in the approval form or in the invitation letter



INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH MOHALI
(Established by Ministry of Human Resource Development, Govt. of India)
Sector 81, Knowledge City, SAS Nagar, 140306, Punjab, India

Five year BS-MS Dual Degree Programme
Interim Grade Card

Name of the student : **Atul Singh Arora**
Registration No. : **MS11003**
Year & Month of Completion : (*Programme not complete*)
Cumulative Performance Index (CPI) : **9.2**

Code	Title of the Course	Cr	Gd
	Semester I		
BIO101	Cellular basis of life	3	A
BIO111	Biology Lab I	1	B
CHM101	Chemistry of elements & chemical transformations	3	D
CHM111	Chemistry Lab I	1	B
HSS101	Language Skills	2	B
IDC101	Introduction to computers	2	A
MTH101	Symmetry	3	A
PHY101	Mechanics	3	A
PHY111	Physics Laboratory I	1	B
	Semester III		
BIO201	Genetics & Evolution	3	A
BIO211	Biology Laboratory III	1	A
CHM201	Spectroscopic & other physical methods	3	B
CHM211	Chemistry Laboratory III	1	A
IDC201	Astronomy & Astrophysics	2	B
IDC211	Workshop Training	1	A
MTH201	Curves & Surfaces	3	A
PHY201	Waves & Optics	3	C
PHY211	Physics Laboratory III	1	A
	Semester V		
HSS632	Philosophy of Rationality	4	A
IDC351	Seminar (attending)	1	A
PHY301	Classical Mechanics	4	A
PHY302	Quantum Mechanics	4	A
PHY303	Electrodynamics	4	A
PHY311	Adv Optics & Spectroscopy Lab	4	A

Code	Title of the Course	Cr	Gd
	Semester II		
BIO102	Gene expression & development	3	B
BIO112	Biology Lab II	1	B
CHM102	Atoms molecules & symmetry	3	B
CHM112	Chemistry Lab II	1	B
HSS102	History of science	2	B
IDC102	Hands-on electronics	2	A
MTH102	Analysis in one variable	3	B
PHY102	Electromagnetism	3	A
PHY112	Physics Laboratory II	1	A
	Semester IV		
BIO202	Behaviour & ecology	3	B
BIO212	Biology Lab IV	1	A
CHM202	Energetics & Dynamics of Chemical Reactions	3	A
CHM212	Chemistry Lab IV	1	A
HSS202	Philosophy of Science	2	A
IDC206	Quantum physics for scientists	2	A
MTH202	Probability & Statistics	3	A
PHY202	Thermodynamics & Statistical Physics	3	A
PHY212	Modern Physics Lab	1	A
	Semester VI		
IDC352	Seminar (attending)	1	A
PHY304	Statistical Mechanics	4	A
PHY305	Atomic & Molecular Physics	4	A
PHY312	Advanced Electronics & Instrumentation Lab	4	B
PHY631	Quantum Computation & Quantum Information	4	A
PHY646	Field Theory	4	A

Date of Issue: **October 20, 2014**

Chanchal Kumar
Dean of Academics
Indian Institute of Science Education & Research (IISER) Mohali

Dean Academics

Meaning of Grades: A=Excellent, B=Good, C=Average, D=Pass, F=Fail.
Points for Grades: A=10, B=8, C=6, D=4, F=0
CPI is the credit weighted average of points earned.

Cr: Credits; Gd: Grade

$$\text{CPI}=\frac{\text{Total of(Credits} \times \text{Points)}}{\text{Total Credits}}$$

Bundesagentur für Arbeit
Zentrale Auslands- und Fachvermittlung (ZAV)

Immatrikulationsbescheinigung
(Certificate of Enrolment)

Name (surname): Singh Arora

Vorname (given name): Atul

geboren am (date of birth) 20.11.1991 (Tag.Monat.Jahr / day.month.year)

wohnhaft in (place of residence): Hostel 7, IISER Mohali, India

Staatsangehörigkeit (nationality): Indian

ist seit Aug / 2011 (Monat/Jahr) eingeschriebene Studentin/eingeschriebener Student
(Since) (month/year) (~~she~~/he has been a registered student)

Fachrichtung (area of studies): Physics Majors

voraussichtliches Studienende 31.May.2016 (Tag.Monat.Jahr)
(~~she~~/he will conclude studies in) (day.month.year)

Die Sommer/Winter-Semesterferien dauern (summer/~~winter~~ vacation)

von (begins) 03.May 2015 bis (and ends) 31.July 2015 (Tag.Monat.Jahr)(day.month.year)

Sie/Er wird das Studium nach den offiziellen Semesterferien fortsetzen
(~~she~~/he will continue studies after vacation) ja (yes) ☑ nein (no) ☐

Name der Universität/Hochschule: Indian Institute of Science Education and Research, Mohali
(name of university/college)
Homepage der Universität/Hochschule: www. iiser mohali.ac.in
(homepage of university/college)
Anschrift und Telefonnummer der Universität/Hochschule:
(address and telephone number of university or college): IISER Mohali, Knowledge City, Sector-81 SAS N, Manauli PO 140306; 2240266, 2240124
[STD: +91 ~~1885~~ 172]

21-10-2014
Chanchal Kumar
Dean of Academics
Indian Institute of Science Education & Research (IISER) Mohali

Datum/Unterschrift und Stempel der Universität/Hochschule
(date/dean's signature and stamp/seal of university or college)

ZAV 2 864 -11/13 - dt./engl. -

ZAV 321, 53107 Bonn

DAAD Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

Regional Office New Delhi
Bangladesh, Bhutan, India, Nepal, Sri Lanka

- No Objection certificate -
Working Internships in Science and Engineering (WISE)

I have applied for the DAAD scholarship programme 'Working Internships in Science and Engineering" for the summer 2015. The details are as following:

DAAD Application Number: NA

Internship period: May 4 to July 31, 2015

German Host University: Universität Siegen

Applicants' details:

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This is to certify that the above mentioned applicant is a registered student of ~~B.tech~~/ Dual Degree/ Integrated programme at our Institution and has applied for the WISE scholarship with our full knowledge. If selected, the Institution will permit the student to pursue his/her internship in Germany for the said period.

Remarks if, any

30-10-2014

Date, signature and stamp of Head of the Department/ Dean

Chanchal Kumar
Dean (Academic)
Indian Institute of Science Education
& Research (IISER) Mohali