

RESUME

Name	: ABHINAV SINHA	Date of Birth	: 8th May, 1990
Nationality	: Indian	Birth Place	: Mumbai, India
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Languages Known: English, Hindi			

EDUCATIONAL QUALIFICATIONS

1. Student of B.Tech-cum-M.Tech (Dual-Degree) in the 7th semester at IIT, BOMBAY
Electrical – Major (M.Tech: Microelectronics)
Computer Science and Engineering – Minor
CPI – 8.59
2. Overall 92% marks and 100% in Mathematics secured in All India Secondary School Examination (CBSE) (12th Grade) in 2007
3. Overall 86% marks and 97% in Mathematics secured in All India Secondary School Examination (CBSE) (10th Grade) in 2005.

INTERNATIONAL CONFERENCES

- I have presented an invited talk at
ICFP (International conference on the frontiers of Physics)-2009

Sr.	SEMINAR	ORGANIZED BY	INVITED TALK ON	VENUE & PERIOD
1.	INTERNATIONAL CONFERENCE ON FRONTIERS OF PHYSICS (ICFP) – 2009	Nepal Physical Society (NPS)	Excited States Calculations in Quantum Dots	Kathmandu ,Nepal June,2009
2.	INTERNATIONAL CONFERENCE ON NANO SCIENCE AND TECHNOLOGY (ICONSAT) – 2010	TIFR, BARC, IIT Bombay	Poster presentation on Confinement Effects on Absorption and Luminescence in Low Dimensional Systems	Mumbai, India February, 2010

The first conference was attended by eminent scientists and research scholars from all over the world including 1985 Physics Nobel Laureate Prof. Klaus Von Klitzing, who gave a plenary talk. Full text of my invited talk got published in conference proceedings and currently further work is going on at TIFR under the guidance of Prof. Vijay Singh (National Coordinator Science Olympiads).

The second conference was attended by more than 300 delegates from around the world.

- **Invited for participation in International Workshop**
I participated in an International Workshop from Jan 13 to Jan 16, 2009 organized by Bhabha Atomic Research Centre (BARC) on “Non-Hermitian Hamiltonians in Quantum Physics” where leading researchers on the subject from all over the world have presented and shared their work.

ACADEMIC ACHIEVEMENTS, AWARDS AND SCHOLARSHIPS

INTERNATIONAL OLYMPIADS

- Selected among 2 students to represent India in 7th Asian Physics Olympiad (APhO), in 2006 held in Almaty, Kazakhstan. This selection was done based on two level exams on all India basis.
- Awarded "Honourable Mention" in 7th Asian Physics Olympiad (APhO), 2006 held in Almaty, Kazakhstan. Where students from all over Asia and neighboring countries participated.
- Received a Special Appreciation letter from Government of India (GOI) for representing the country in APhO, in India's first participation in the competition.

RANKED IN THE TOP 0.1% NATIONALLY

➤ IIT-JEE 2007

Ranked 286 among over quarter million students from all over India in Joint Entrance Exam (IIT-JEE) 2007 for admission into Indian Institute of Technology (IIT).

➤ PHYSICS OLYMPIAD

- a) Selected in top 30 among 35,000 students from all over the country in Indian National Physics Olympiad (INPhO) 2007, based on a two level exam.
- b) Received a gold medal for outstanding performance in the Orientation cum Selection camp (OCSC) for International Physics Olympiad (IPhO) 2007.

➤ MATHS OLYMPIAD

Selected in top 30 among 30,000 students from all over the country (participating from 8th grade onwards to 12th grade) for International Mathematics Olympiad Training Camp (IMO-TC) for 3 consecutive years (2005, 2006, 2007) based on two level exams i.e. RMO (Regional Mathematics Olympiad) and INMO (Indian National Mathematics Olympiad).

➤ FELLOWSHIP OF INDIAN INSTITUTE OF SCIENCE

Holder of prestigious fellowship “ Kishore Vaigyanik Protsahan Yojana” (KVPY) for the period 2005-07 awarded by Indian Institute of Science (IISc) , Bangalore, India based on two level exam cum interview. An award given only to top 0.3% students every year from all over the country to nurture young talent in science and promoting careers in research.

➤ ASTRONOMY OLYMPIAD

Selected in top 27 among 30,000 students from all over the country for International Astronomy Olympiad Training Camp (INAO) in 2006 based on a two level exams.

FULL SCORE IN SAT

Secured perfect score i.e. 1600/1600 in Scholastic Aptitude Test (SAT) examination conducted by College Board, USA in 2006.

POST-OLYMPIAD DEGREE IN ADVANCED MATHEMATICS AT ISI

- a) Selected for Mathematics Nurture Program 2008 held at Indian Statistical Institute (ISI) based on outstanding performance in IMO-TC 2007 by National Board for Higher Mathematics (NBHM), a camp held for training engineering students in higher Mathematics courses in which only 25 students have been selected from all over the country.
- b) Scholarship received
Received Scholarship from Indian Statistical Institute (ISI) for outstanding performance in Mathematics Nurture Camp held in ISI in summer of 2008 for selected students.

RESEARCH INTERESTS

- a) NANOELECTRONICS
- b) VLSI DESIGN AND TESTING
- c) COMMUNICATION SYSTEMS

RESEARCH EXPERIENCE

- **Post-Olympiad Research in Advanced Physics at TIFR**

Selected for National Initiative for Undergraduate Sciences (NIUS) 2008-2009 based on outstanding performance in International Physics Olympiad Training Camp 2007 conducted by Homi Bhabha Centre for Science Education (HBCSE) and Tata Institute of Fundamental Research (TIFR), a program conducted for training students by completing a project in Physics with applications in Engineering with an assigned Guide (professor). Only 20 students from all over the country were selected for the program.

- *RTD Simulation* Summer 2010
GUIDE: Prof. GERHARD KLIMECK, Director NCN Department, Purdue University
Simulations were performed for various potential models (and other varying parameters like dimensions) on 2 barrier RTDs using tools on nanoHUB.org (rtdnegf tool particularly) and collect the data from simulation to be used in a text.
- *Digital VLSI Design* December 2008 - ongoing
GUIDE: Prof. JAYANTA MUKHERJEE, EE Department, IIT BOMBAY
The aim of the project is to obtain new circuits by learning how to make layouts and then Simulate circuits using cadence .This is under URA (Undergraduate Research) programme run by IIT, BOMBAY.
- *2D Quantum Dot under a Magnetic Field (Part I)* Summer Internship, 2009
GUIDE: Prof. VIJAY SINGH, national coordinator science Olympiads, HBCSE and TIFR
Aim of the project is to get "Coulomb price of BenDaniel Duke boundary condition applied to a single electron circular quantum well" for all the excited states. This is a under NIUS

- (National Initiative for Undergraduate Science).
- *2D Quantum Dot under a Magnetic Field (Part II)* December 2008- ongoing
GUIDE: Prof. VIJAY SINGH, national coordinator science Olympiads, HBCSE and TIFR
Aim of the project is to get “Coulomb price of BenDaniel Duke boundary condition applied to a two electron circular quantum well”. This is a under NIUS (National Initiative for Undergraduate Science).
- *Nanocrystal Flash Memory Simulation* May – July 2008
GUIDE: Prof. JUZER VASI, EE Department, IIT BOMBAY
Participated in an ongoing project in IIT, Bombay as doing summer work on flash Memory Simulation using concept and working principle of quantum dots.

COURSE PROJECTS

- *Sound Level Meter* October 2009 - ongoing
GUIDE: Prof. DINESH SHARMA, EE Department, IIT Bombay
The Aim in this project is to build a circuit which can measure intensity of sound in decibels on the breadboard and then make a PCB (designed on Eagle).
- *Spin Hall Effect & Rashba Spin Coupling* April 2009
GUIDE: Prof. N. VENKATRAMANI, Material Sciences Department, IIT Bombay
In this project we made a make report on Current Polarization and Spin Hall Effect after making a full theoretical study.
- *Implementing UART protocol* March 2009
GUIDE: Prof. SACHIN PATKAR, EE Department, IIT Bombay
This was a Lab project where we made a circuit to imitate UART type of communication
- *Sudoku* October 2008
GUIDE: Prof. S. SUDARSHAN, Computer Science and Engineering Department, IIT BOMBAY
A C++ programming project to create a program with visual interaction features to create and play the game of Sudoku.

SPECIAL MENTION

Published a half page article in national newspaper "Times of India" as well as in an international newspaper "Economic Times" in June 2007 covering my academic achievements at national and international levels and an interview on guidance for young talent in Mathematics.

OTHER ACHIVEMENTS AND SCHOLARSHIPS

at IIT, BOMBAY

- Received prestigious scholarship from IIT, Bombay Heritage Fund, USA for the entire duration of my course (5 yrs) in IIT, Bombay.
- Secured a position in top six in Physics Olympiad 2008 conducted at IIT Bombay having participation from all over the Institute as well as from outside universities.
- Awarded Merit certificate in Mathematics Olympiad 2008 conducted at IIT Bombay having participation from all over the Institute as well as from outside universities.

outside IIT, BOMBAY

- Secured a position in top 1% of the students all over the nation in National Standard Examination in Physics (NSEP) for two consecutive years (2006 and 2007).

- b) Awarded Gold Medal in Junior Mathematics Olympiad (JMO) 2004 conducted for students all over the country.
- c) Topped at the country level in both rounds of National IIT/PMT Olympiad (NIPO).
- d) Topped at the regional level in Mathematics Talent Search Examination (MTSE) 2005.
- e) Received a Gold medal for topping at the school level in National Science Olympiad (NSO).

PROGRAMMING SKILLS

Programming Languages: C, C++, 8085 Assembly.

Operating Systems: Windows, MAC OSX and Linux.

Packages: Cadence, Sentaurus, Latex, Mathematica, Matlab (& Simulink), Mentorgraphic, Eagle, Orcad, WinAVR, Spice, Illustrator.

Microcontrollers/Processors: AVR, Intel 8085, 8051.

SPORTS AND HOBBIES

- a) Reading Books
- b) Watching Movies
- c) Playing Lawn Tennis
- d) Teaching and guiding junior students in Academics.

DECLARATION

I hereby declare that above information is true to the best of my knowledge and belief.

APPENDIX

Extra Curricular Activities

1. Selected for National Sports Organization (NSO) in Lawn Tennis in IIT, Bombay completing 100 hours worth of training, practice and fitness.