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CURRICULUM VITAE
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PARUL MAHESHWARI
Under-Graduate Fourth Year
Dual Degree (B.Tech + M.Tech) Program with specialization in Nanoscience
Majors in Engineering Physics with Honors
Indian Institute of Technology, Bombay

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Age: 21
Nationality: Indian
Sex: Female
Languages: English, Hindi

Academic Background:
• Pursuing a Dual Degree (B.Tech and M.Tech) in Engineering Physics with specialization in Nanoscience from IIT Bombay, India {CGPA - 8.01/10}
• Intermediate with Science Major from CBSE, India in 2010 {GPA(%) - 90.80} , in top 0.1% in Mathematics.
• Secured All India Rank 1091 amongst about 5 lac science students in IIT- Joint Entrance Examination 2010 (a countrywide examination).
• Selected for Indian National Mathematical Olympiad (INMO) 2010 and secured state rank 6th in Regional Mathematical Olympiad (RMO) in Gujarat State, India.
• Matriculation from CBSE in 2008 {GPA(%) - 91.40}
• Secured All India Rank 301 in the National Science Olympiad, year 2007 (grade IX)

Projects:

• Semiconductor nanostructures (Autumn'12 and ongoing)
under Prof. Subhabrata Dhar, Dept. of Physics, Indian Institute of Technology, Mumbai
A study of GaN/AlxGa1-xN heterojunction that gives rise to 2D Electron Gas. Deducing the variation of possible energy levels for a given composition of AlxGa1-xN with the value of x. Did the study for two dimensional i.e. layered heterostructure as well as for cylindrical (core-shell) geometry.

• Evaporation of water from nanostructured surfaces (Summer '13)
under Prof. Pushan Ayyub, Dept. of Condensed Matter Physics, Tata Institute of Fundamental Research, Mumbai
Conducted an experimental study of rate and mechanism of evaporation of water from various surfaces including that of porous anodic alumina (PAA) and chalk. It led to the conclusion that the rate of evaporation is exponential for surfaces with large pore sizes or for hydrophilic surfaces.

• Auto range Multimeter (Autumn'12)
under Prof. Pradeep Sarin, Dept. of Physics, Indian Institute of Technology, Mumbai
A Micro-controller project to construct an autorange DMM which sets the range of the resistance and voltage to be measured by itself. The project implemented intensive use of successive ADC and DAC and coding on Arduino Uno.

• Non-Linear Dynamics and Chaos in Happiness of people (Autumn'11)
under Prof Punit Parmanada, Dept. of Physics, Indian Institute of Technology, Mumbai

A study of non-linear dynamical patterns in happiness and love, and hence chaotic behavior in the same. Modeled a third order differential equation considering anticipation. Used MATLAB to simulate various models involving damping, limit cycles and chaos.

• Tetris using C++ (Spring'11)

under Prof R K Joshi, Dept. of Computer Science, Indian Institute of Technology, Mumbai

Developed TETRIS, the tile matching puzzle video game. The algorithm was developed in C++ while the GUI was coded in the FLTK (fast light toolkit) framework. The game implemented all features of the original tetris.

Key academic courses

Physics:
Methods in Analytical Techniques*
Semiconductor Physics*
Introduction to Nanoscience and Nanotechnology*
Introduction to Physics of Nanoparticles and Nanostructures*
Electromagnetism I and II
Statistical Mechanics
Continuum(fluid) Mechanics
Quantum Mechanics I and II
Photonics
Non Linear Dynamics
Statistical Mechanics
Condensed Matter Physics
Methods in Experimental Particle Physics
General Theory of Relativity

Mathematics:
Basic and Multivariable Calculus
Linear Algebra
Differential Equations
Complex Analysis
Numerical Analysis

Electronics:
Introduction to Electronic and Electrical Circuits (theory)
Labs : Basic Electronics, Analog Electronics, Digital Electronics and Microprocessor

Physics Labs:
Optics Laboratory*
Introductory and general physics laboratory
Solid State Physics Lab
Nuclear Physics Lab

Technical Skills :
Tools and packages : MATLAB, LtSpice, Arduino IDE 22, Mathematica (Wolfram)
Coding : C++/C, HTML, CSS, php, javascript.