

Sandesh Kalantre | IIT Bombay

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Education

IIT Bombay

Sophomore Undergraduate, B.Tech in Engineering Physics, **CPI - 9.81/10**

Mumbai

2014–2018

S. P. College

High School Graduation, Percentage – 94.31

Pune

2012–2014

Ranked 1st in the college among 800 students

Dyanmata High School

Matriculation, Percentage – 97.82

Amravati

2012

Academic Achievements

2011: Awarded a **Gold Medal** at the 16th International Astronomy Olympiad, Almaty, Kazakhstan and **ranked 1st** among participants from 21 countries.

2012: Awarded a **Gold Medal** at the 6th International Olympiad on Astronomy and Astrophysics, Rio de Janeiro, Brazil and ranked 18th among participants from 28 countries.

2013: Awarded a **Silver Medal** at the 7th International Olympiad on Astronomy and Astrophysics, Volos, Greece.

2013: **Gold Medal** and certificate of Merit in Indian National Physics Olympiad (2013) for being among national top 35.

2014: Awarded an **AP** grade (given only to top 1%) for exceptional performance in *PH108 Quantum Physics and Application*, *CH107 Physical Chemistry*, *CS101 Computer Programming and Utilization* and *EE112 Introduction to Electronics* at IIT Bombay.

2011: **Gold Medal** in Homi Bhabha Young Scientist Competition organised by Mumbai Science Teachers Association over the state.

2010: **All India Rank 4** in 4th International Mathematical Olympiad organised by Science Olympiad Foundation (SOF).

2009: **All India Rank 5** in 12th National Science Olympiad organised by Science Olympiad Foundation (SOF).

Scholarships

2013: Kishore Vigyan Protsahan Yojana (**KVPY**) awarded by Department of Science and Technology, India for promotion of basic sciences among high school students to about ≈ 250 students in the country.

2010: National Talent Search Scholarship (**NTSE**) awarded by the National Council for Educational Research and Training to the top ≈ 1000 students in the country

2011, 2012, 2013: Infosys Award for International Olympiad medalists by HBCSE in association

with the Infosys Foundation and TIFR Endowment Fund.

2012: Amul Vidya Shree Award for excelling in Secondary School Certificate(SSC) Examination, 2012

Projects

2014: NumCpp - mathematical library in C++

Guide : D. B. Pathak, IIT Bombay

- Wrote a stack based parser using Dijkstra's shunting yard algorithm to parse function definitions as well as mathematical equations.
- Implemented routines for numerical integration using Romberg and Monte-Carlo methods over 1 and multiple dimensions, numerical differentiation and root finding of a function in a given interval.
- Wrote procedures for matrix operations and finding the Fast Fourier Transform(FFT) of an array of complex numbers.

2014: Pulsar Observatory for Students(POS)-2014

Guide : K. Krishnakumar, Radio Astronomy Centre, Ooty

- Studied the operation of the Ooty Radio Telescope (ORT), a 530-metre (1,740 ft) long and 30-metre (98 ft) wide Cylindrical Paraboloid telescope.
- Collected data for pulsars using the ORT and analysed it to explore various properties such as the Dispersion Measure(DM), modulation index and pulse broadening due to interstellar scattering.
- The slides of the presentation I gave are available at http://home.iitb.ac.in/~sandeshkalantre/presentations/sandesh_pos2014.pdf

Position of Responsibility

2015 : Student Facilitator at Orientation cum Selection Camp for Astronomy Olympiad: HBCSE, Mumbai

2015 : Convener at Maths and Physics Club, IIT Bombay: Involved in setting up events such as quizzes on Physics/Math and lab visits.

Courses

Mathematics: Calculus, Linear Algebra, Differential Equations

Physics: Quantum Physics and Applications, Electricity and Magnetism, Physics lab

Other Courses: Computer Programming and Utilization, Physical Chemistry, Organic and Inorganic Chemistry, Chemistry Lab, Engineering Drawing, Mechanical Workshop, Biology, Introduction to Electronics

Computer skills

Programming: C, C++, Python, Haskell, HTML, CSS, Javascript, Perl

Operating Systems: Linux, Windows

Software packages: \LaTeX , NumPy, SciPy, matplotlib, gnuplot, Octave, Pelican, Node.js

Extra-curricular activities

- Built a Kelvin Water Dropper and demonstrated build-up of a potential difference under Maths and Physics club, IIT Bombay.

- Secured 2nd position in the Bazinga Physics Quiz organised by Maths and Physics club, IIT Bombay.
- Currently associated with National Service Scheme, IIT Bombay under Educational Outreach program.
- Secured first prize in Debate competition held at Dynamata High School, Amravati, Maharashtra.
- Secured first place in Inter-School Geography Quiz.
- Participated in the *Personality Development Camp* organised at Bhonsala Military School, Nagpur, Maharashtra for two weeks.