

Curriculum Vitae for Kushal Thaman

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Personal

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Education

Eicher School Parwanoo (2019-2021): All India Senior School Examination

Subjects: Physics, Mathematics, Chemistry, Computer Science, English

Grades: 11th grade: 97.6% (Rank: 1 out of 128 students)

12th grade: 98.0% (Rank: 1 out of 126 students)

Activities:

- President of Student Council
- President of *Lencei*, Physics & Astronomy Club
- School Valedictorian
- Student of the Year, 2019-2021
- Captain, Soccer team
- Team Leader, Debate Team
- First Chair & Lead Pianist, School Choir

Anees School (2018-2019): All India Secondary School Examination

Subjects: Mathematics, Sciences, Social Sciences, English, Hindi

Grades: 10th grade: 95.4% (School Rank: 1 out of 180 students. National Rank: 23 out of 2.8M students)

Activities:

- President of Student Relations, Member of Student Council
- President, Physics Club
- School Valedictorian

Delhi Public School (2012-2018)

Subjects: Mathematics, Sciences, Social Sciences, English, Hindi, Punjabi

Grades: 9th grade: 97.6% (School Rank: 1 out of 504 students)

Activities:

- Student of the Year, 2013-2018
- School Valedictorian, 2012-2018
- Academic Scholar Gold Medal, School Valedictorian (school topper for six years)
- 6 Overall Proficiency awards (for exemplary overall performance)
- 6 Scholar Badges (for exemplary academic achievement)
- 2 Honor Badges (for exemplary extracurricular performance)
- Member, Debate Team
- Starter, Soccer Team
- Second Chair Pianist, School Choir

Honors and Awards

- **Honorable Mention**, International (distributed) Physics Olympiad 2020 (Moscow, Russia)

Top five physics students nationally are chosen to represent India at the IPhO. This year, it was held as a distributed event by MIPT and IPhO.

- **National Young Physicist**, International Young Physicists' Tournament 2021 (Kutaisi, Georgia)

Top six students nationally were chosen to present their physics research at the IYPT science fair/tournament in Georgia. National Rank 1, awarded the top-six gold honor for my research in *Bead Dynamics*, *Dynamic Hydrophobicity* and *Pre-Arcing in Fuses*.

- **Indian Team**, International Philosophy Olympiad 2021 (Lisbon, Portugal)

My essay on *Identity and Person* has been selected among the two best submissions in the national philosophy olympiad. Will represent India at IPO Lisbon in May 2021.

- **Indian Team**, International Zhautykov Olympiad 2021 (Almaty, Kazakhstan)

Selected to represent India at IZhO 2021 in Almaty - the team consists of two students from physics and informatics each, and three from mathematics.

- **Youngest Presenter**, 52nd Lunar and Planetary Science Conference (Houston, USA)

For my paper *An Analytic Model of Stable and Unstable Orbital Resonance*, I am a part of the group of youngest presenters at the premier international conference conducted by NASA Johnson Space Centre and the Lunar Planetary Institute. I will be presenting my [research abstract](#) and a poster with the research team in Houston at the LPSC.

- **National Scholar**, National Talent Search Examination (NTSE) 2019

From over 1.3M sophomores across the country, the top two thousand who win the NTSE exam over two stages (regional and national) are awarded the NTSE Scholarship by the Ministry of Education, Government of India. The winners were invited to attend the NTSE Nurturance Camp in New Delhi, India.

- **National Qualifier**, Indian National Physics Olympiad 2019

The top 450 students from over 54,000 participants at the National Standard Examination in Physics qualified for the Indian National Physics Olympiad (INPhO); out of these, 23 were from junior year (including me). State Rank: 3.

- **National Qualifier**, Kishore Vaigyanik Protsahan Yojana (KVPY) Research Aptitude Test 2019

The top two thousand students from over 500,000 participants at the KVPY Research Aptitude Test qualified for the national scholarship.

- **Featured**, The Physics Teacher Journal (American Association of Physics Teachers)

Featured in Volume 59, Issue 1 (January 2021) for my solution to the monthly *Physics Challenge for Teachers and Students*.

- **National Rank 5, Awardee**, Scholastic Test of Excellence in Mathematical Sciences 2019

Placed 5th out of thousands of participants in Physics Category A as a sophomore. Nationwide test in mathematics, physics and informatics - top fifty students are invited to attend the national camp in Chennai Mathematical Institute (CMI).

- **Bronze Medalist**, Scholastic Writing Awards 2016

National Rank 3, Junior Category for my novella (published on Amazon). The stories of the winners were compiled and published in the book *For Kids, By Kids: Scholastic Writing Awards*.

- **Winner**, Delhi Public School Science and Mathematics Talent Examination 2018

All India Rank 71 out of 100,000 freshmen from Delhi Public School international society (School Rank 1). The top 100 students attended the national winners camp in Mumbai, India.

- **International Rank 5, Special Award**, Princeton University Explorer Competition 2020

For my paper *An Analytic Model of Stable and Unstable Resonance*.

- **International Rank 12, Honorable Mention**, Princeton University Physics Competition 2020

- **International Rank 14, Category A Winner**, Online Physics Brawl 2020

Over 3000 contestants gathering in 720 teams from Europe, Asia, Africa, South America and North America.

- **National Qualifier**, Regional Mathematics Olympiad 2019

In top 1% nationally for the RMO 2019 (equivalent to the American Invitational Mathematics Examination).

- **Silver Medalist**, University of Cambridge Integration Bee 2020

- **High Honors**, Australian National Chemistry Quiz 2017

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Activities & Work Experience

- **Founder, Problem Writer, Jury Member**, Online Physics Olympiad (USA)

The non-profit [organization](#) was started to conduct an international physics event in place of IPhO which was being cancelled due to the COVID-19 pandemic. The largest online student-run physics competition with over 300 teams from 50+ countries, OPhO was sponsored by Wolfram Research, Art of Problem Solving etc.

- **Teaching Assistant & Problem Curator**, AwesomeMath Academy (Texas, USA)

TA (paid work) for Dr. Branislav Kisacanian's Physics Level 3 class, to train students for the USA National Physics Olympiad the F=ma exam. Write and grade problem sets and homework assignments.

- **Head Boy, President of Student Council**, Eicher School Parwanoo (India)

Preside over the 3000+ student body of the school. Helped in initiation of clubs like the Entrepreneurship Club, and portfolios for initiatives against the use of drugs and smoking in teenagers.

- **Founder, Administrator**, Physics Olympiad Resource Hub

Created the largest physics olympiad [resource hub](#) over the internet to spark an interest in students who love physics and problem solving.

- **President**, *Lencei*, Physics Astronomy School Club

Took lectures, wrote handouts, conducted stargazing sessions. Teaching Assistant for Physics and Mathematics classes too.

- **Cohort Member**, Quantum Cryptography School for Young Students (Ontario, Canada)

Attended the Quantum Cryptography summer programme conducted by the Institute of Quantum Computing in Canada.

- **Cohort Member**, Stanford University's Pre-Collegiate Studies in General Relativity

Selected to attend the pre-collegiate school for General Relativity in summer 2020.

- **Volunteer**, Community Service at the local hospital, Goodearth foundation

Conducted seminars and talks against the use of drugs and smoking in teenagers. Presented at hospitals, student facilities and schools.

- **Student Member**, New York Academy of Sciences

Participate in talks and conferences on Physics and Astrophysics.

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Experience

- Python 2.7
- LaTeX/TeX
- MATLAB
- CPP
- Overleaf
- Mathematica

Languages

- English
- Hindi, Punjabi
- Spanish

Books

- **University Physics** by Young Freedman, Ford
- **Physics**, by Resnick, Halliday, Krane
- **Introduction to Classical Mechanics** by David Morin
- **Electricity and Magnetism** by David Morin & E.M. Purcell
- **Introduction to Electrodynamics** by David J. Griffiths
- **Problems in General Physics** by I.E. Irodov
- **Vibrations and Waves** by A.P. French

Courses (Online & Local College)

- MIT OpenCourseWare:
Physics: 8.01, 8.02, 8.022, 8.03, 8.033, 8.04, 8.044, 8.07
Mathematics: 18.01, 18.02, 18.03, 18.05, 18.06
- Local College:
Multivariable Calculus
Linear Algebra
Ordinary Differential Equations
Introduction to Quantum Mechanics via Quantum Cryptography