

WHY I JOINED CMI

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ABSTRACT. I have often been asked by people why I joined Chennai Mathematical Institute (CMI) for its National Undergraduate Programme in Mathematics and Computer Science, forsaking other options such as the Indian Institute of Technology and the Indian Statistical Institute. Here, I describe the important factors that led to my decision to join CMI.

1. A LITTLE ABOUT MY ACADEMIC BACKGROUND

1.1. **Schooling.** I did my schooling (starting from Nursery right until 12th standard) at Delhi Public School, Noida. The school is affiliated to the Central Board of Secondary Education, and is well-known (though not outstanding) for its achievements both in academics and in other areas. At the time when I was in my school, it was undergoing radical transformations and improvements in terms of competition-orientation. However, awareness regarding Olympiads was still fairly low. Before me, no student from my school had made it through the Indian National Mathematical Olympiad, and I don't know whether anybody ever made it through the Regional Mathematical Olympiad.

1.2. **Coaching institutes.** In my +2 years (standards 11 and 12) I attended Vidyamandir classes¹ to improve my basics in Physics, Chemistry and Mathematics. Vidyamandir Classes is a coaching institute for the Indian Institute of Technology Joint Entrance Examination (IIT-JEE) and as such, focusses on problem-solving techniques. Although the Vidyamandir administration was not aware of and did not attach too much importance to Olympiads, a large fraction of the students from Delhi who qualified for Olympiads in Mathematics, Physics and Chemistry, were from Vidyamandir Classes. Thus, Vidyamandir Classes was an important means for me to network with others interested in Olympiad mathematics.

1.3. **Olympiads.** I had heard of the Olympiads since a very young age, but there was no particular awareness about Olympiads in my school. The Olympiad programme in Delhi was (and is) coordinated by Dr. Amitabh Tripathi, who works at the Indian Institute of Technology, Delhi. The earlier coordinator for this event was Dr. S. P. Arya. Dr. Arya, after leaving the official coordination for the Olympiad programme, has continued to organize Olympiads for junior classes, such as EMO, SMO, and JMO. These Olympiads are of a somewhat different flavour from the RMO (Regional Mathematical Olympiad²).

Thanks to this confusion, some students (including me) were under the false impression that the EMO, JMO and SMO were initial steps leading up to the RMO. Luckily, however, through an indirect personal contact of my mother's, I came to hear from Professor Rajeeva L. Karandhikar (then working at Indian Statistical Institute, Delhi). At the time, Professor Karandhikar was the National Coordinator for the Olympiad programme, and he informed me that the RMO is independent of contests organized by Dr. Arya. He also said that people can and do give the RMO even before 11th standard (which is the highest standard for unrestricted competition). I had not seriously considered the possibility of appearing for the RMO before 11th standard, and unfortunately, I did not appear in 10th standard even after hearing from Professor Karandhikar. This was due to a clash with the National Talent Search Examination³ for which I had been preparing and because I felt I could not prepare sufficiently for the Olympiad in such a short span of time.

At the end of 10th standard, I visited Dr. Amitabh Tripathi at Indian Institute of Technology, Delhi to purchase the book *Mathematical Circles* from him. Dr. Tripathi strongly urged me to prepare for the Olympiads.

In 11th standard, I cleared the Regional Mathematical Olympiad, coming first in Delhi region. I followed this up by clearing the Indian National Mathematical Olympiad⁴, coming 4th across India. I

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¹<http://www.vidyamandirclasses.com>

²http://en.wikipedia.org/wiki/Regional_Mathematical_Olympiad

³http://en.wikipedia.org/wiki/National_Talent_Search_Examination

⁴<http://en.wikipedia.org/wiki/INMO>

then proceeded to make it through the rigorous selection procedure at the International Mathematical Olympiad Training Camp⁵ and thus went for the IMO in 2003. I went to the IMO again in 2004 based on good performance in IMOTC 2004.

I have chronicled my Olympiad-related experiences at my blog:

<http://olympiadsandi.blogspot.com>

2. MY DECISION PROCESS, SOURCES AND FACTORS

2.1. Before the camp. Keen to pursue study and research in mathematics, I sought inputs on good places for pursuing the subject from as many sources as possible. Most sources pointed to two names – the B.Sc. (Hons) programme at Chennai Mathematical Institute (CMI) and the B.Mat. programme at Indian Statistical Institute (ISI), Bangalore.

- (1) Professor Shiva Shankar, who had been a batchmate of my mother in the B.Tech. programme at IIT, Delhi, shifted from his job at the Indian Institute of Technology, Powai, to Chennai Mathematical Institute. He also informed my mother of an undergraduate programme for mathematics that CMI has recently started.
- (2) Professor Rajeeva L. Karandhikar, at the time I consulted him regarding Olympiads, said that Chennai Mathematical Institute (CMI) and Indian Statistical Institute (ISI) Bangalore, were the two top places for pursuing an undergraduate mathematics programme within India.
- (3) As topper of a privately organized competition called the National Science Olympiad, I was invited to a dinner with the Minister for Science and Technology. There, one of the Secretaries, Dr. Ramamurthy, also said that the two best places for pursuing mathematics in India are CMI and ISI Bangalore.

2.2. During and after the 2003 camp. In the IMO Training Camp, I discussed future prospects for studying mathematics both with students and with teachers. The Mathematical Olympiad Cell teachers, including Dr. C.R. Pranesachar and Dr. B. J. Venkatachala, strongly recommended Chennai Mathematical Institute and Indian Statistical Institute, Bangalore. They cited past students with Olympiad background who had joined both the places.

In the 2003 International Mathematical Olympiad, one of my teammates from India was Swarnendu Datta. This was Swarnendu's fourth time at the IMO, and he was well-known for his deep passion and interest in mathematics. Swarnendu had initially been in favour of joining Indian Statistical Institute, Bangalore. However, at the International Olympiad in Informatics Training Camp (IOITC), faculty members from CMI such as Madhavan Mukund and K. Narayan Kumar (who are the main organizers of the IOITC) convinced Swarnendu to join CMI. Swarnendu promised to write to me after some time with input on how CMI is as a place.

In September, I got a mail from Swarnendu telling me that CMI was a good place to join because of the great academic freedom enjoyed by students and the helpfulness of the faculty. Till that time, I did not have any inside sources about ISI, Bangalore.

2.3. 2004. By the end of 2003, I was still undecided on whether to join CMI or ISI, Bangalore. The main factor in ISI Bangalore's favour was that ISI was a better established place at the time with a full campus and hostel, whereas CMI was still operating from ten rooms in an office complex in T. Nagar with rented accommodation given to students. Further, CMI was not a deemed university and its degrees were granted by Madhya Pradesh (Bhoj) Open University.⁶

One of the main attractions of CMI at the time was that it seemed to be actively seeking students, unlike ISI Bangalore. This included policies of direct admission to students attending the International Mathematical Olympiad Training Camp as well as their attempts to get students into CMI during the IOITC. Another attraction was the greater "academic freedom" that CMI offered its students.

As of February 2004, I was still undecided, so I applied both to CMI and ISI. Application to CMI was largely a formality, because my attending the IMOTC gave me direct admission. Application to ISI Bangalore was through a written test followed by an interview. I gave the written test in mid-May, still unsure of where I would eventually land up.

⁵<http://en.wikipedia.org/wiki/IMOTC>

⁶Both these factors are no longer applicable. CMI now has its own campus with hostel and deemed university status has been approved for CMI

2.4. 2004 Training Camp. In April-May 2004, after having successfully completed my CBSE examinations, I started reading higher mathematics textbooks, particularly in algebra. I was getting fascinated with group theory and with the many variations to the concept of group.

My fascination with Euclidean geometry, which began with Olympiad preparation, had also grown stronger, and I had started getting glimpses of the ways in which this related to “algebraic geometry” and “commutative algebra”. I was curious to learn more on these areas.

During the 2004 IMO Training Camp, I talked to some visiting mathematics teachers, including a person from ISI Delhi and the late Professor C Musili (University of Hyderabad). They both recommended CMI as being more tuned to my areas of interest. They also said that with my proven mathematical background and an education from CMI, I had a very high chance of getting admitted for mathematics research to a top place in India such as Tata Institute of Fundamental Research.

2.5. The final decision. Apart from the inputs I received regarding mathematics at CMI, another major factor that influenced me to join CMI was its strong computer science programme. I had been interested in algorithms and coding, though I had not devoted too much time to these areas at high school. The fact that the main trainers and organizers for the Indian contingent to the IMO Training Camp, as well as the strong mix of computer science courses at CMI, convinced me that an education in CMI will give me a good foundation in both mathematics and computer science.

I had put all these factors together by the middle of June, 2004 and decided to join CMI. Accordingly, I sent CMI a confirmation of my admission. Although I qualified for the interview to ISI Bangalore, I decided not to attend the interview as I had already made up my mind on CMI.