

Hands-On Science and Math



In today's competitive and fast-paced we don't get enough time to explore. Another aspect of contemporary education is a lot of focus on theoretical concepts. We may prove theorems on equilateral triangles but folding one with simple A4 paper, and then converting it to the largest possible equilateral triangle unravels a lots of mathematical mysteries.

In this talk we will explore the magic of hands-on science and math. We will explore

- Sherlock's Holmes mystery to find the direction of cycle by looking at the tracks,
- read time of a clock where hour and minute hand are indistinguishable,
- maths behind the harmonium keys (yes they look at same width but cannot have same width),
- days and nights on moon, 8 beat table taal and Fibonacci numbers and many many more interesting stories.

And behind each of these interesting stories is very interesting science and math. So this workshop will have a lot of interesting stories of science and hopefully brings forth the inherent creativity and sense of wonder. **The goal of the workshop is to Bring Back the Gleam in the Eyes.**

We will build, cut, stick, pull things apart and put things together. We will make platonic solids, 3D structures, spinners, motors, generators, gliders (if we have time). This hands-on approach to science and maths makes learning joyous and experiential. We will see how seemingly simple looking "toys" can demonstrate complex and beautiful scientific concepts.

We will also see how interesting research can be presented to wider audience with the help popular science films as a medium. [These short animated films](#) communicate with larger public in the language they can relate to.

 <p>Gravitational Waves - General Relativity - LIGO</p>	 <p>Math Music And Manjul</p>	 <p>Matchstick Soccer Ball</p>	 <p>Days and Nights on Moon ?</p>	 <p>Folding an equilateral triangle</p>	 <p>Super Bouncy Ball</p>
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Brief Bio of Speaker

Manish Jain graduated from the Indian Institute of Technology, Kanpur (1993) with a degree in Electrical Engineering. He also finished a few courses at Stanford. He currently works at the IUCAA Science Center in Pune making short films on interesting research, designing toys and activities, conducting workshops and teacher trainings, and making popular science films.

Prior to IUCAA, he worked in the area of chip design for 19 years at Synopsys in Bangalore and Mountain View, California. Most recently he was a Director R&D leading the Low Power Simulation efforts. Manish has always had a passion for science and in 2013 he decided to spend all his energies to bring back the gleam in the eyes, to make learning joyous. Manish spends a lot of time these days looking at the science behind the simple toys in the videos and is passionate about sharing the magic with people.

He is very interested in making esoteric science/research pedantic so that it can reach general populace and can speak in their language. He has a few popular animated [films in Earth Science/Astronomy](#).

Manish firmly believes this approach can revolutionize learning since toys speak the language that children understand. He can be reached at manish.jain@gmail.com

