



# Diving Deep into Physics Colloquium Series

## Public Lecture

### Title: Facilitating thinking and learning in and beyond the physics classrooms using research-based approaches



**Prof. Chandralekha Singh**



- Distinguished Professor at Department of Physics & Astronomy, University of Pittsburgh, USA
- Founding Director of the Discipline-Based Science Education Research Center
- Fellow of American Physical Society (APS)
- Fellow and Past President of American Association of Physics Teachers (AAPT)
- Fellow of American Association for the Advancement of Science
- Medalist and Alumni of IIT Kharagpur

[https://en.wikipedia.org/wiki/Chandralekha\\_Singh](https://en.wikipedia.org/wiki/Chandralekha_Singh)

**About talk:** I will discuss, using my research in physics education, how research can be used as a guide to developing curricula and pedagogies to reduce student difficulties and for making physics equitable and inclusive. I will also discuss innovations in teaching and learning methods for physics after the new normal using my research conducted during emergency remote teaching and lessons learned that can be valuable for innovation in teaching and learning going forward. My research has focused on improving student understanding of introductory and advanced concepts. We are developing research-validated learning tools such as tutorials and peer instruction tools that actively engage students in the learning process. I will discuss how we evaluate the effectiveness of these tools using a variety of methodologies and then describe our research studies that provide guidelines for how to enhance physics by making it inclusive. Finally, I will discuss how a field-tested short intervention was implemented at the beginning of a physics course and how it improved the performance of underrepresented students in introductory physics classes compared to the comparison group.

● Date/Time: 09 August 2023 (Wednesday) at 7 PM IST

● Hybrid mode:

● Venue: Kothari Seminar Hall, Physics Department, IIT Jodhpur

● Online Webex Link:



**webex**  
by CISCO

**Meeting number: 2512 995 6103**

**Password: 12345**

## About Speaker

Chandralekha Singh is a Distinguished Professor of Physics in the Department of Physics and Astronomy and the Founding Director of the Discipline-based Science Education Research Center (dB-SERC) at the University of Pittsburgh. She is a Past President of the American Association of Physics Teachers. She obtained her bachelor's and master's degrees from the Indian Institute of Technology Kharagpur and her Ph.D. in theoretical condensed matter physics from the University of California Santa Barbara. She was a postdoctoral fellow at the University of Illinois Urbana Champaign, before joining the University of Pittsburgh. She has been conducting research in physics education for more than two decades. She co-lead the US team to the International Conference on Women in Physics in Birmingham UK in 2017. She is a Fellow of the American Physical Society, American Association for the Advancement of Science, and American Association of Physics Teachers. More information about her can be found at <https://sites.google.com/site/professorsinghswebpage/>