



An Exclusive  
FORTNIGHTLY SESSION ON

**kamp**  
KNOWLEDGE & AWARENESS MAPPING PLATFORM

05:10:08:07  
06:27

**SAVE THE DATE**

For Students from Classes 3rd to 12th  
(Parents/Teachers can also Participate)

**Pioneering Tomorrow:**  
TECHNOLOGY, INNOVATION, & SCIENTIFIC  
SOCIAL RESPONSIBILITY

**Speaker: Dr. Partha Sarathi Pal**  
(Senior Scientist, KTMG, CSIR-CMERI)

**AUGUST 29TH,**  
04:00 PM IST

**zoom** **f** **LIVE STREAM**

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## KNOWLEDGE AND AWARENESS MAPPING PLATFORM

### KNOWLEDGE SESSION 2024: EPISODE 59

Organized By: Knowledge & Awareness Mapping Platform (KAMP)  
In Knowledge Alliance with CSIR -NIScPR and M/s NCPL



**Topic:** Pioneering Tomorrow: Technology, Innovation, and Scientific Social Responsibility

**Category:** Science Technology and Innovation **Speakers/Presenters:** Dr. Partha Sarathi Pal

**Organized for:** Students

**Date:** August, 16th, 2024

**No. of Participants:** 500+ Students from different schools across India

## Overview:

On August 29th, KAMP held an exclusive Fortnightly Session titled “Pioneering Tomorrow: Technology, Innovation, and Scientific Social Responsibility,” specially crafted to engage and inspire students from grades 3 to 12. Dr. Partha Sarathi Pal, a Senior Scientist at CSIR-CMERI, led this comprehensive session, offering students an insightful exploration into the dynamic fields of science, technology, and innovation.

Dr. Pal began by guiding students through the historical development of science and technology

in India, illustrating the evolution of these fields and their significance in the contemporary world. He highlighted the advancements made over the decades, reflecting on India’s achievements in scientific and technological domains and demonstrating how these have become integral to societal progress and global standing. Dr. Pal underscored the role that students could play in shaping this evolving landscape, stressing that young minds have the potential to contribute

meaningfully to the continued advancement of science and technology.

**History of Science & Technology in India**

Vedic Period:

- 1500-500 BCE, late bronze age and early iron age
- Ayur Veda: Medicine & Health
- Dhanur Veda: Armour and Military Science
- Ghandarva Veda: Unfold music and art
- Sthapathy Veda: Architecture

Some Important Invention in Vedic Period:

- The Concept of Zero
- Plastic Surgery: Facial Reconstruction
- Weights: A System of Measuring
- Cataract: An Indian Invention in Medicine
- Yoga: Connection of Body Mind

Scholars in Vedic Period:

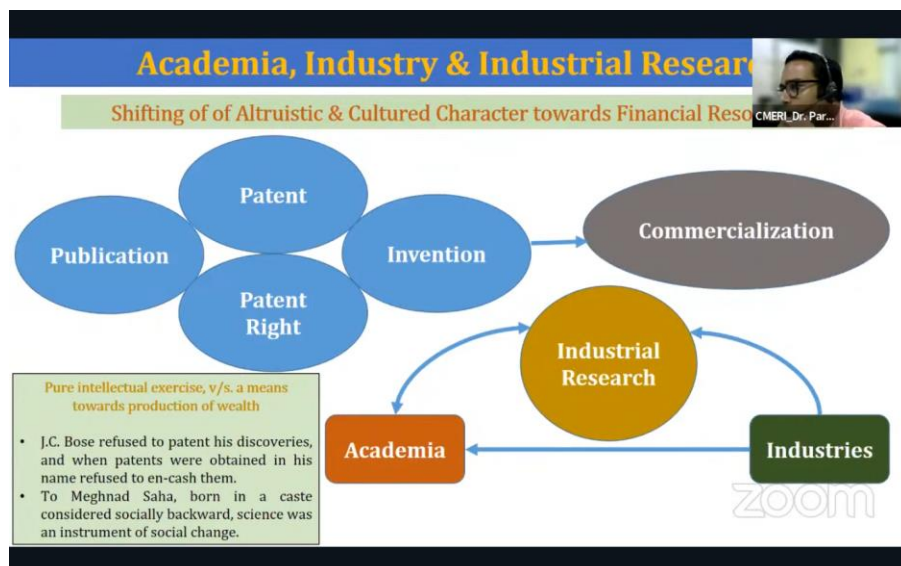
- Sushruta (1000 BCE): Father of Plastic Surgery
- Charaka (400 BCE): Ayurveda System of Medicine
- Aryabhata (476 BCE): Astronomer & Mathematician
- Brahmagupta (598 BCE): Astronomer & Mathematician

The main founder, who...

One of the key focus areas of the session was Dr. Pal’s discussion on the difference between invention and innovation, drawing clear distinctions between creating something new and adapting existing ideas to produce tangible, impactful solutions. He explained how



understanding this distinction could empower students to think both creatively and practically. Further, Dr. Pal introduced students to the essential concepts of output versus outcome—stressing that the true value of innovation lies in its results and its real-world impact.



The session also presented a nuanced comparison between corporate social responsibility (CSR) and scientific social responsibility (SSR), examining the broader implications of both. Dr. Pal emphasized how CSR and SSR initiatives shape responsible scientific advancements and encourage a sustainable approach within the industry. He explored the role of academia, industry, and

industrial research collaborations, showcasing their collective influence on innovation and societal development.

Moreover, Dr. Pal delved into various elements related to technology, including the commercialization process, which transforms scientific research into market-ready solutions. He explained the importance of benchmarking practices and technology readiness levels, which serve as standards in assessing the maturity and applicability of technological innovations. Additionally, he highlighted the critical role that research and development organizations play in facilitating these advancements, emphasizing their contributions to scientific discovery and its practical applications.

In exploring the legal and ethical aspects of innovation, Dr. Pal addressed intellectual property rights (IPR), providing students with an understanding of the need to protect original ideas and inventions within a competitive environment. He also differentiated between artificial intelligence (AI) and augmented intelligence (AI), clarifying the distinction

**Cultivation of Science**

Indian Association for Cultivation of Science (1876):

- Dr. Mahendralal Sircar (1833-1904) a poor orphan, was a man of strong conviction and tenacity, established IACS in 1876, the **oldest fundamental research institute of India**
- Sir C. V. Raman worked at IACS during 1907-1933 and here he discovered "Raman Effect" for which he awarded **Nobel Prize in 1930**.
- Sir Jagadish Chandra Bose and Sir Prafulla Chandra Roy were lectured at IACS.

Indian Institute of Science (IISC), Bangalore (1911):

- Swami Vivekananda's meeting with Jamsetji Tata on 31<sup>st</sup> May, 1894 while sailing from Yokohama to Vancouver, changed India's scientific vision.
- Jamsetji then founded Indian Institute of Science (IISC), Bangalore in 1911, one of the most prestigious institute across the globe.

TATA Steel Mill in Jamshedpur (1911):

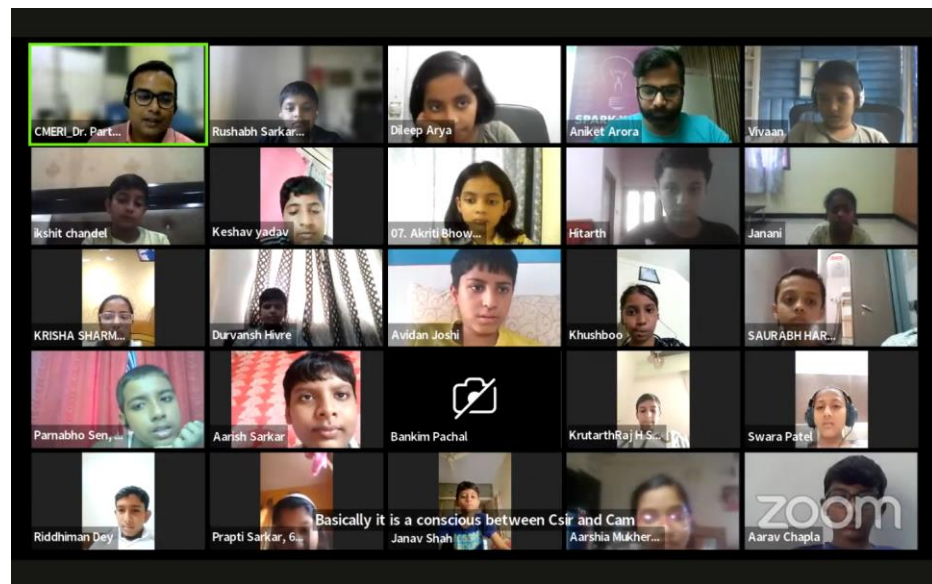
- Visionary P. N. Bose inspired Jamsetji to setup Steel Mill in 1911.



between machines designed to mimic human intelligence and those developed to enhance human capabilities.

To illustrate India's innovative spirit, Dr. Pal shared relevant case studies from the nation's own landscape of scientific and technological achievements, offering real-world examples that underscored the themes discussed. By the end of the session, students were equipped with a

deeper understanding of these foundational concepts, empowering them with knowledge to contribute to the future of science and technology in India meaningfully.



KAMP's fortnightly workshops aim to help students develop creativity, meaningful learning, and critical reading and thinking skills, bringing out their inherent abilities. The vision of KAMP is to identify and

capture the Scientific and Technological temperament in students, contributing to making India a Global Leader in the fields of science, technology, and the humanities.

These workshops, conducted by KAMP, cover various topics falling under the categories of science, technology, and innovation, Scientific and Life Skills, Career and Professional Development, Academic development, and training trainers and teachers.

KAMP believes that exposure to such topics from experts within specific fields helps students become aware of real-life situations and challenges, develop a problem-solving nature, understand their core values and personal interests, evaluate their skills within the given area, and achieve their best in their most desirable way.

#### **Organized By:**

**Knowledge and Awareness Mapping Platform**  
(KAMP Operations and Coordination Office)

#### **Team Credits:**

**Ms. Arika Mathur**  
(Member, KPMC)

#### **Moderated By:**

**Mr. Aniket Arora**  
(Outreach Coordinator, KAMP)