# Resonance journal of science education

November 2023 Volume 28 Number 11

#### 1701









#### **GENERAL ARTICLES**

1621 Kankan Bhattacharyya A Pioneer of Experimental Research in Ultrafast Spectroscopy Pratik Sen and Anunay Samanta

1637 Frequency Selective Surfaces: An Introduction Bhavya S. Sanghavi, Garima Joshi and R. Vijaya

1651 Bacterial Pathogenicity of the Human Skin The Case of Staphylococcus aureus and Its Multiple Attack Strategies Ananya Parthasarathy and Kaustubh Rau

1669 Pancharatnam-Berry Phase in Quantum Optics Relation to Bargmann Invariants and Geodesics Sarbani Chatterjee

1685 Planik and Square Dance, Two Planar **Permutation Games** Solving a Simpler Rubik's Cube with Group Theory Olivier Ramaré

1701 Cliffhangers Cliff-dwelling Plants of the Western Ghats Vijayan Smrithy and Mandar N. Datar

Virial Theorem of Clausius 1719 From the Quantum World to Cosmological Systems Vishwamittar



# Classroom

**Picking Balls From Bowls** 

1751

1763

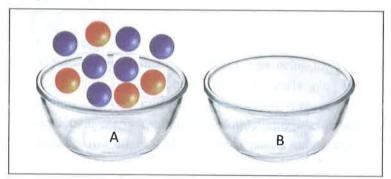
Jyotirmoy Sarkar

Addressing Safety in Chemistry Laboratory

**Through Case Studies** 

Sonia Ratnani

#### 1751



### **Front Cover**



Schematic representation of geomorphological microhabitats and the cliff-dwelling chasmophytes occupying them. Illustration by Vijayan Smrithy. (See article on page no. 1701)

# **Back Cover**



Kankan Bhatacharyya

(1954 - 2022)

Illustration: Subhankar Biswas

# **DEPARTMENTS**

~W~~

**Editorial** 

R. N. Mukherjee

1609

Susanta Mahapatra



**Science Smiles** 

1613

Ayan Guha

Article-in-a-Box

Saptarshi Mukherjee, Sobhan Sen and Anindya Datta **1617** 

Crossword

1772

**Life Under Water** 

Sindhu Radhakrishna Mayukh Dey

Follow us

Facebook:

@Resonance.IASc.Bng

Twitter: @IAScResonance