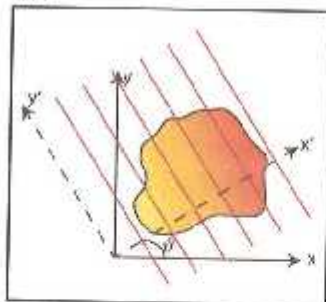


695



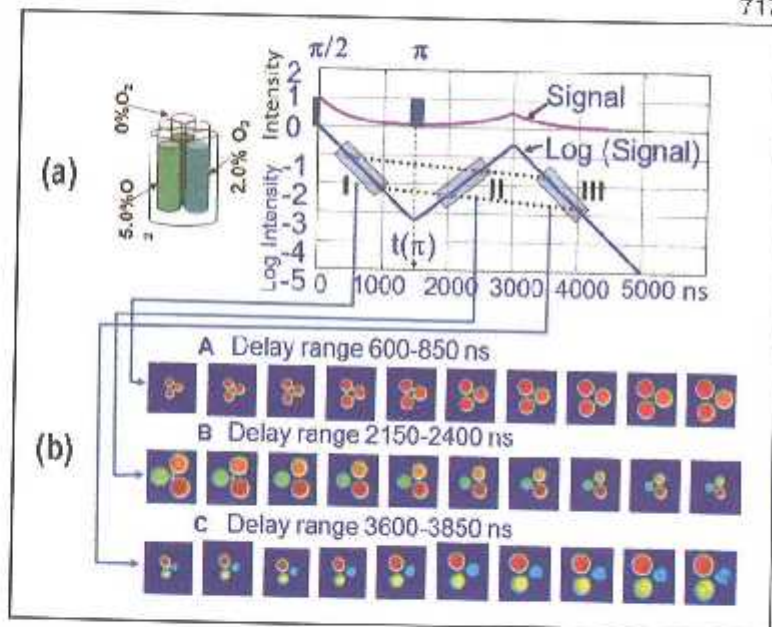
741



GENERAL ARTICLES

- 677 James N Gray – An eScience Visionary  
V Rajaraman
- 695 Big Data Analytics  
V Rajaraman
- 717 Electron Paramagnetic Resonance Imaging  
Radiofrequency FT-EPR imaging  
Sankaran Subramanian and Murali C Krishna
- 741 G N Ramachandran's Contributions to Medical  
Imaging  
Substance From Shadows  
Anil Kumar and Ashok Ajoy

717



Science Paradigms

749

- Thousand years ago: science was **empirical**  
*describing natural phenomena*
- Last few hundred years: **theoretical** branch  
*using models, generalizations*
- Last few decades: a **computational** branch  
*simulating complex phenomena*
- Today: **data exploration** (eScience)  
*unify theory, experiment, and simulation*
  - Data captured by instruments or generated by simulator
  - Processed by software
  - Information/knowledge stored in computer
  - Scientist analyzes database/files using data management and statistics

$$\left(\frac{a}{a_0}\right)^3 = \frac{4\pi U p}{3} - K \frac{c^2}{a^3}$$



Information & Announcements

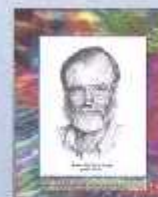
- Sixth Refresher Course in Materials Preparation and Measurement of Properties 765
- Science Academies' Refresher Course on Advanced Quantum Mechanics 766

Front Cover



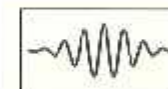
The field of 'Big Data' is depicted by a 'word cloud' of the many new terms which are heard often nowadays. The background conveys the wide range of areas in which an impact is already being seen, with much more expected in the future.

Back Cover



James N Gray  
(1944–2012)  
Illustration: Subhankar Biswas

DEPARTMENTS



Editorial 673  
Rejaram Nityananda



Science Smiles 676  
Ayan Guha



Classics 749

eScience: A Transformed Scientific Method

Jim Gray

Inside Back Cover

Flowering Trees  
Credit: R Arun Singh, IISc