NPTEL Video Course - Chemistry and Biochemistry - NOC:Nuclear and Radiochemistry

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Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Radioactivity
Lecture 2 - Radioactive decay
Lecture 3 - Radioactive decay chain
Lecture 4 - Radioactive equilibria
Lecture 5 - Nuclear structure and stability
Lecture 6 - Nuclear force and nuclear properties
Lecture 7 - Liquid drop model
Lecture 8 - Applications of Liquid drop model
Lecture 9 - Nuclear Shell model
Lecture 10
Lecture 11 - Alpha decay
Lecture 12 - Beta decay
Lecture 13 - Gamma decay
Lecture 14 - Interaction of radiations with matter
Lecture 15 - Interaction of fast electrons with matter
Lecture 16 - Interaction of electromegnetic radiations with matter
Lecture 17 - Principles of radiation detectors
Lecture 18 - Gas filled detectors
Lecture 19 - Scintillator detectors
Lecture 20 - Semiconductor detectors
Lecture 21
Lecture 22
Lecture 23
Lecture 24
Lecture 25
Lecture 26 - Compound nucleus reactions
Lecture 27 - Nuclear fission
Lecture 28 - Nuclear fusion
Lecture 29 - Production of radioisotopes using neutrons

Lecture 30 - Radioisotope production using charged particles
Lecture 31 - Radiochemical practices
Lecture 32 - Radioanalytical techniques and applications
Lecture 33 - Nuclear analytical techniques
Lecture 34 - Applications of neutron activation analysis
Lecture 35 - Ion beam analysis
Lecture 36 - Nuclear reaction analysis and particle induced gamma emission
Lecture 37 - Nuclear Probes: Positron annihilation spectroscopy
Lecture 38 - Perturbed angular corelation
Lecture 39 - Radioisotope applications in healthcare
Lecture 40 - Radioisotope applications in Industry, agriculture and food technology
Lecture 41 - History of actinides
Lecture 42 - Actinide concept
Lecture 43 - Actinide ionic species in water
Lecture 44 - Actinide hydration and Hydrolysis
Lecture 45 - pH-pE concept
Lecture 46 - Ln/An absorption spectroscopy - I
Lecture 47 - Ln/An absorption spectroscopy - II
Lecture 48 - Ln/An emission spectroscopy - I
Lecture 49 - Ln/An emission spectroscopy - II
Lecture 50 - Solution chemistry Actinides
Lecture 51 - Complexation of actinides - I
Lecture 52 - Complexation of actinides - II
Lecture 53 - Solvent extraction of actinides - I
Lecture 54 - Solvent extraction of actinides - II
Lecture 55 - Actinide partitioning
Lecture 56 - Analytical chemistry of actinides
Lecture 57 - Transactinides
Lecture 58 - Fast radiochemical separations
Lecture 59 - Actinides in the environment
Lecture 60 - Actinides sorption and migration