

Duration: 90 min

Level: Post-Graduate

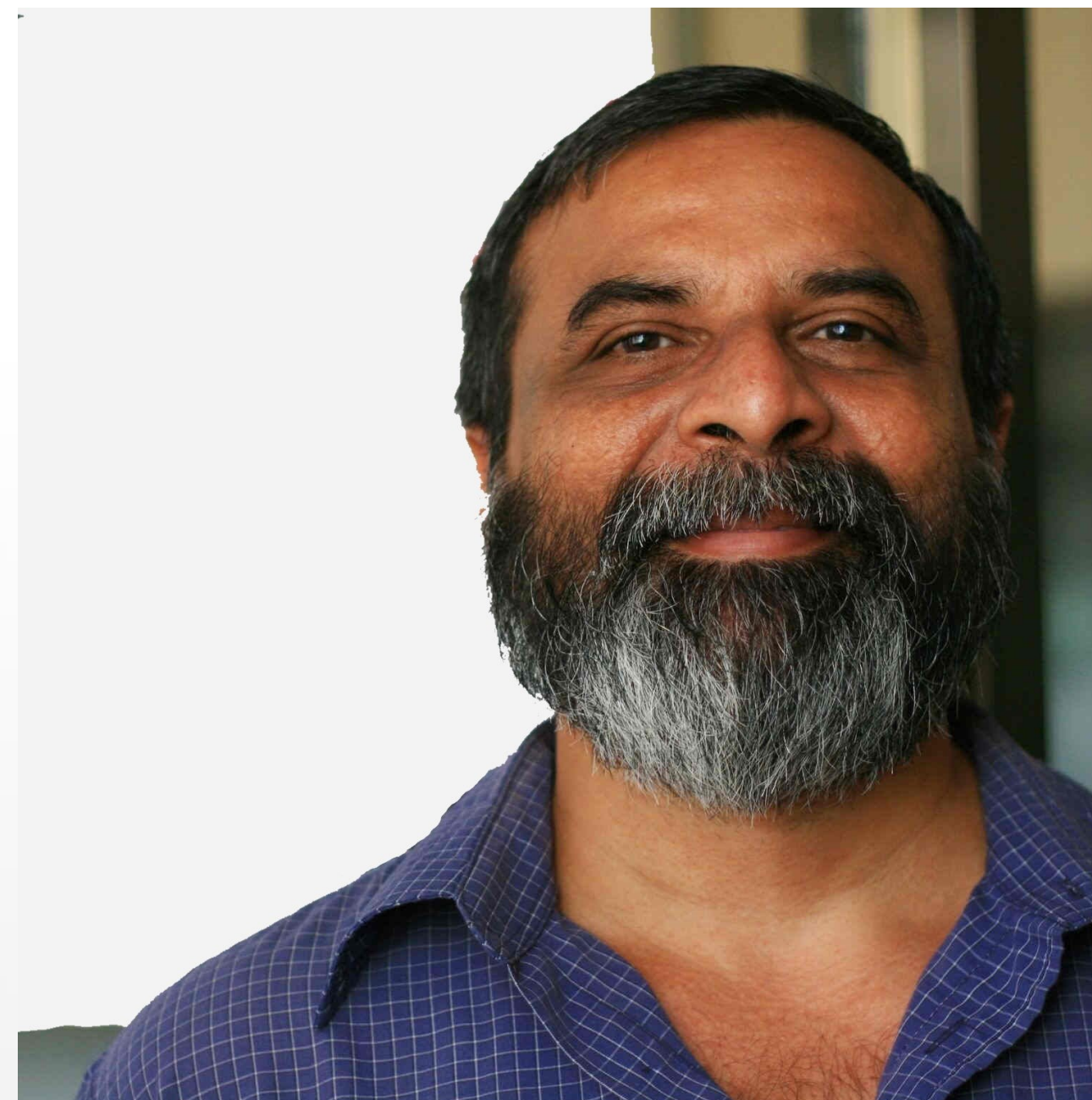
Tuesdays & Thursdays

Time: 10:00 Hours

NMR Basics to Advanced

Prof. P. K. Madhu
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URL: <https://chempu.ac.in/events/>



Prof. P. K. Madhu: <http://www.tifr.res.in/~madhu/>



Department of Chemistry

Pondicherry University

Tentative Topics

- *Basic of NMR, angular momentum, spin precession, phenomenological ideas of relaxation, Bloch equations
- *Various spin interactions responsible for NMR spectra, calculation of spectrum from first principles
- *Fourier picture, pulses, nutation frequencies
- *Design of NMR pulse schemes, spin echo as a model, measurement of relaxation times
- *NMR hardware
- *Magnetisation transfer schemes through scalar coupling and dipole-dipole coupling
- *Nuclear Overhauser effect
- *Higher-order quanta in NMR, so-called forbidden transitions
- *Two-dimensional spectroscopy, basics, information content, interpretation
- *Certain standard 2D schemes for assignments and structural elucidation
- *Overview of biomolecular NMR
- *Principles of imaging

Learning Objectives

- Understand what NMR is all about
- Origin of spin-spin coupling and its observation and inference
- What are pulses in NMR?
- How nuclear spin responds to various pulses
- Understanding NMR instrumentation
- Magnetic coupling
- Structural elucidation through various NMR techniques
- How Magnetic resonance imaging works
- Other advanced concepts

