

National Workshop on Nuclear Magnetic Resonance Spectroscopy & Imaging (NMRSI 2019)

Department of Chemistry, University of Kerala in association with SICC of the University is organizing a National Workshop on Nuclear Magnetic Resonance Spectroscopy and Imaging from 25th to 28th of February 2019. The four day workshop includes both scientific lectures of eminent Scientists and renowned Radiologists on various perspectives of NMR, advances in and imaging technique and hands on experience with NMR facility at SICC University of Kerala. Deligates are offered a platform to present their novel research work related to this area.

Important Information

Since maximum number of candidates is limited to thirty spot registration is not allowed. Participants are requested to kindly fill and send the registration form attached with this brochure to the e mail id: nmrsi2019@gmail.com on or before 7th February 2019. Participants paying the registration fee as demand draft are requested to write their name and institution name on the back of the demand draft and submit the same to the convener of NMRSI 2019.

Registering Person	Amount (Rs.)
Students	1500
Faculty	3000
Industrial participants	5000

Mode of registration fee remittance:

Demand draft should be drawn in Favor of "Convener and Head NMRSI 2019" payable at Karyavattom. Online payment can be done through NEFT/RTGS to the following account and mention the transaction ID in the registration form.

Account Number	38188439780
Bank	SBI
Branch	Karyavattam
IFSC Code	SBIN0070043
MICR Code	695002948

Accommodation

Accommodation for the participants can be arranged on payment basis in Kerala University Hostel/ University guest house or private hotels nearby depending on the availability of rooms on first service basis.

Last date of registration: 07/02/2019

Last date of submission of abstracts: 07/02/2019

REGISTER NOW!

OPEN TO 30 PARTICIPANTS ONLY

Chief Patron
Dr. V. P. Mahadevan Pillai
Vice Chancellor
University of Kerala
Thiruvananthapuram
Kerala

Patrons
Dr. Ashalatha S. Nair
Director, SICC & Professor
Department of Botany,
Dr. A Bijukumar
Dean, Faculty of Science.
University of Kerala

&
Dr. Sankaran Subramanian
President,
National Magnetic Resonance Society
INSA Senior Scientist & Professor.

Convener

Dr. Sony George
Assistant Professor & Head
Department of Chemistry
University of Kerala

Co-convener
Dr. Ani Deepthi
Assistant Professor
Department of Chemistry
University of Kerala

Organizing Committee

Dr. T.S. Anirudhan
Dr. S.M.A. Shibli
Dr. Jayasree E.G.
Dr. Suneesh C.V.

Staff, Research Scholars & Students
Department of Chemistry
University of Kerala, Kariavattom
Thiruvananthapuram, 695581

For further details Contact

Ms. Anju Ph. 9496829336
Mr. Jibin Ph. 8089910500



UNIVERSITY OF KERALA

www.keralauniversity.ac.in
THIRUVANANTHAPURAM, KERALA, INDIA



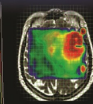
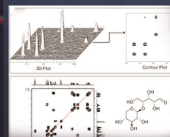
Welcomes you to

**NATIONAL WORKSHOP ON MAGNETIC
RESONANCE SPECTROSCOPY
AND IMAGING - 2019**
(NMRSI 2019)

25th TO 28th FEBRUARY, 2019

Organized by
**DEPARTMENT OF CHEMISTRY & SICC
UNIVERSITY OF KERALA
KARIAVATTOM, THIRUVANANTHAPURAM-695581**

For details contact
DR. SONY GEORGE PH. 9446462933
E-mail: emailtosony@gmail.com



ABOUT THE UNIVERSITY

University of Kerala is one of the pioneer universities in India which was founded as the University of Travancore in the erstwhile princely state of Travancore in 1937. The University established in 1937 by a promulgation of Sri ChithiraThirunal Balarama Varma, the Maharajah of Travancore who was also the first Chancellor of the University. Today the University has sixteen Faculties and Forty one departments of teaching and research in addition to study centers and other departments. The university has over 150 affiliated colleges. Teaching, Research and Knowledge extension are the mandate of the Departments. The teaching departments offer post-graduate programmes, M. Phil. Programmes and doctoral research. The Institute of Distance Education offers a number of under-graduate and post graduate programmes which cater to more than 7000 students, all over the country and abroad. University of Kerala was ranked 47 in India overall by the National Institutional Ranking Framework (NIRF) in 2018 and 30 among Universities. The university was reaccredited with 'A' grade by NAAC.

ABOUT THE DEPARTMENT

The Department of Chemistry was established in 1937 and is one of the active teaching and research departments in Kerala University. It currently offers M. Sc., M.Phil. and Ph.D. programmes. More than 200 Ph.D. degrees have been awarded to researchers from the Department and more than 850 research papers in peer-reviewed journals have been published in standard national and international journals.

SOPHISTICATED INSTRUMENTATION AND COMPUTATION CENTRE (SICC)

In appreciation of R & D contributions based on research publication, University of Kerala was selected as one of performing university by Government of India and provided substantive research grant under PURSE Scheme by Department of Science & Technology during 2011-2016. Realizing that scientific instruments with cutting-edge technology are vital for pursuing research in many areas of modern science and technology, the Sophisticated Instrumentation and Computation Centre (SICC) was established at Kariavattom campus. Extensive range of state-of-the-art analytical instruments purchased under PURSE Scheme and various other sources. The centre represents one of the largest commitments for research in the history of the university and will carry forward decades of research into new realms of application and discovery.

Facilities

- High Performance Computing Facility
- Scanning Probe Microscope with Peak Force Tapping Package (SPM/AFM)
- ICAP Qc Series ICP-MS with New Wave NWR 213
- X-Ray Diffractometer (XRD)
- Spectral Confocal Microscope (SCM)
- Carl Zeiss EVO 18 Secondary Electron Microscope with EDS(SEM)
- Nuclear Magnetic Resonance Spectroscopy (NMR)
- CHN(S) Analyzer
- Simultaneous Thermal Analyzer TGDTA/DSC
- DNA Sequencer
- X-Ray Photoelectron Spectrometer (XPS)

Scope and objective of the workshop

The indented workshop will provide an opportunity to enrich the knowledge of Scientist, Academicians and research scholars in India to gain insight for the development of new NMR methodologies and their application to different areas like Structural Biology, Systems biology, Nanomaterials, Protein structure determination, Protein dynamics, protein-ligand interactions, screening for ligands, Protein folding studies and current developments of MRI.

The work shop consists of four full days of in-class and hands-on instruction in topics ranging from Small Molecule to Protein Structure and Dynamics with first-hand experience in 2D NMR setup. This workshop will deal with the theory, instrumentation and applications of modern NMR spectroscopic techniques, starting from fundamentals to the most advanced levels. There will have tutorial lectures on various topics along with research lectures from leading practitioners of NMR and MRI. One particular session is dedicated for the participants to present their exquisite and interesting experimental results pertinent to NMR spectroscopy and MRI. Interested participants should send the abstracts along with the registration form.

Magnetic Resonance Spectroscopy and Imaging

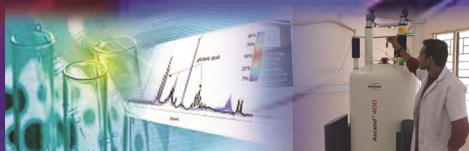
Magnetic resonance spectroscopy is a technique performed by listening to whispering of Hydrogen and other nuclei having nuclear spin value $I \neq 0$. It had transcends the boundaries of physics, Chemistry, Biology and medicine. Structural elucidation of organic molecules is a tip of the iceberg application of NMR. Nuclear Magnetic Resonance (NMR) spectroscopy along with its twin sister MRI proved to be powerful, continually evolving analytical technique with wide applications in chemical, biological, pharmaceutical and medical sciences. This technique has made rapid strides over the last two decades, both in theory and in applications, and works in conjunction with modern computer and information technology. The most notable application of NMR towards mankind is its use in advanced medical imaging techniques, such as in magnetic resonance imaging (MRI).

Theme of the workshop

- Magnetic resonance spectroscopy and its applications in clinical and scientific field
- Hetro nuclear NMR
- 2D, 3D NMR & Applications
- Solid state NMR
- NMR of biomolecules
- MRI and its clinical applications

NMR facility at University of Kerala

NMR spectrometer with 9.4 TESLA superconducting magnet (400 MHz ^1H) with facility for observation of ^1H , ^{19}F , ^{15}N , ^{31}P (Broadband) enabling experiments such as DEPT, INEPT, COSY, NOESY and with provision of new pulse generation and decoupling sequences and relaxation experiments.



OUR SPEAKERS

Dr. Sankaran Subramanian

President, National Magnetic Resonance Society & Fellow of the International EPR (ESR) Society. An adjunct Professor & INSA Senior Scientist,



Dr. C Kesavadas

Professor and Head, Department Of Imaging Sciences And Interventional Radiology at Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST).



Dr. Mavinkurve Raghav

Senior Application Scientist, Bruker India, Scientific technical expert in the field of Installation of NMR High Resolution Spectrometer, NMR Solid State Spectrometer & Cryoprobes.



Dr. R. S. Jayasree

Scientist F at SCTIMST Trivandrum. Prominent scientific personality in the field of Biophotonics and Nanobiophotonics, MRI Contrast Agents.



Dr. Reji Varghese

Associate Professor at School of Chemistry, IISER, Thiruvananthapuram. Expertise in organic synthesis, DNA Nanotechnology, Supramolecular Chemistry, and Bionanomaterials. Heteronuclear NMR.



Dr. Vinesh Vijayan

Associate Professor at IISER Thiruvananthapuram. Renowned personality in the field of NMR technique. Expertise in NMR spectroscopy, Structural studies of small molecules and Bio-molecules,



National Workshop on Magnetic Resonance Spectroscopy and Imaging - 2019

(NMRSI 2019)

Manuscript no.: (will be inserted by the organisers)

TITLE OF YOUR PAPER (All CAPS, Times New Roman 14pt, Bold, Center)

A.B. Author^a and C.D. Author^b(13 pt, Times New Roman, bold, center, presenting author's name underlined)

^a Replace this text with author's affiliations (use complete addresses) 11Pt, Italics, Times New Roman, center

^b If more than one affiliation is needed, they should be indicated by superscript letters, a, b, c, etc. as shown above.

E-mail: provide presenting author's email ID

Abstract paragraph: (Times New Roman, 12 pt, line spacing should be multiple at 1.15, both sides justified.). Can be supported with Graphical abstract/important figures /tables. **Length of the abstract manuscript should not exceed one page.**

Graphical Abstract: Based on figure size, it should be included in a text box and text wrapped (square). The authors should ensure to provide figures with good resolution as these will be reproduced as submitted. The same is applicable for placing table, depending on the number of columns.

Figure 1: Figure caption should be in Times New Roman 10 font, Italics in a separate text box under the figure.

References

- 1) A. D. Author, B. C. Author and D. E. Author, *Journal name*, **Year** (Volume), 234-240.
- 2) F. G. Author, H. I. Author, *Name of the book*, **Year** (Edition), Publisher name, City, Country.
- 3) Maximum 3 references to be provided, Times New Roman, 12 Pt, line spacing should be multiple at 1.15, both sides justified.

***National Workshop on Magnetic Resonance
Spectroscopy and Imaging - 2019
(NMRSI 2019)
Registration form***

Name :

Designation :

Institution :

Address :

Mobile number :

E- Mail :

Presentation / Participation :

Mode of
payment(DD/NEFT/RTGS) :

Registration fee paid(in words) :

DD No./ Transaction Id :

Bank Name & Branch :

Date of remittance :

Need accommodation Yes/No :

Signature of the participant :

Nomination by head of the department/ supervising teacher :

Place:

Date:

Registration Details

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Programme Schedule of NMRSI 2019

Venue: Department of Chemistry & NMR Facility, SICCC, University of Kerala

Day 1: Monday, February 25, 2019

Time	Description	Speaker/ Demonstrator
8.40am	Welcome & Announcements	
8.45am	Inaugural Function	
9.00am-10.00am	Basics of NMR and 1D NMR	Dr. Sankaran Subramanian
10.00am-11.00am	Heteronuclear NMR & its applications	Dr. Reji Varghese
11.00am-11.15am	Tea Break	
11.15am-12.15pm	Introduction to 2D NMR & Applications to Small Molecules	Dr. Sankaran Subramanian
12.15pm-1.15pm	Stereochemistry, Structure determination and Conformational Dynamics	Dr. Reji Varghese
1.15pm-2.15pm	Lunch	
2.15pm-3.15pm	Demonstration of NMR Facility at University of Kerala / Interactive Session	Dr. Mavinkurve Raghav Dr. Sankaran Subramanian

Day 2: Tuesday, February 26, 2019

8.55am	Welcome & Announcements	
9.00am-10.00am	NMR Relaxation: Principles and applications	Dr. Mavinkurve Raghav
10.00am- 11.00am	NMR Hamiltonian and the various Internal Spin Interactions	Dr. Sankaran Subramanian
11.00am-11.15am	Tea Break	
11.15am-12.15pm	Cross Correlations in NMR (NOE, DNP, STD etc)	Dr. Mavinkurve Raghav
12.15pm-1.15pm	Problem Solving in NMR	Dr. Sankaran Subramanian
1.15pm-2.15pm	Lunch	
2.15pm-5.00pm	Demonstration and Hand on experience @ NMR Facility at University of Kerala/ Interactive Session	Dr. Mavinkurve Raghav

Day 3: Wednesday, February 27, 2019

8.55am	Welcome & Announcements	
9.00am- 10.00am	Introduction to solid state NMR (Magic angle Setting and Cross Polarisation, HETCOR experiments, MQMAS experiments)	Dr. Mavinkurve Raghav
10.00am-11.00am	Transverse relaxivity and saturation magnetisation for MRI application	Dr. R S Jayasree
11.00am-11.15am	Tea Break	
11.15am-12.15pm	Ultra-fast methods, Non-Uniform Sampling & Multi- receiver experiments	Dr. Mavinkurve Raghav
12.15pm-1.15pm	Lunch	
1.15pm-2.15pm	Selected Oral presentations of participants (5 nos)	
2.15pm-5.00pm	Demonstration and Hand on experience @ NMR Facility at University of Kerala/ Interactive Session	Dr. Mavinkurve Raghav

Day 4: Thursday, February 28, 2019

8.50 am	Welcome & Announcements	
9.00 am -10.00 am Vinesh Vijayan	2D NMR, 3 D NMR pulse sequences: Approach, scope and pathways	Dr.
10. 10 am – 11.00 am (S S	Magnetic Resonance Imaging HNMR Spectroscopy, Diffusion/Perfusion Imaging, Susceptibility weighted imaging, BOLD, and Functional MRI')	Dr. C Kesavadas
11.00 am-11.15 am	Tea break	
11.15 am – 12.15pm Vijayan	NMR of Nucleic acid and Proteins	Dr. Vinesh
12.15 pm – 1.15 pm	Selected oral presentations of participants (5 nos)	
1.15 pm - 2.15 pm	Lunch	
02.15 pm – 4.00 pm	Demonstration and Hand on experience @ NMR Facility at University of Kerala/ Interactive Session	Dr. Vinesh Vijayan Mr. Jibin

4.00 pm

**Valedictory function & Distribution of awards and
Certificates**