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Edited by

Dr. A. K. Abdul Rahim
Prof. V. M. Abdul Mujeeb
Dr. T. Shalina Begum
Mrs. A. P. Kavitha
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PREFACE

The Post Graduate & Research Department of Chemistry, Farook College (Autonomous) is very pleased to release the Proceedings of the International Conference on " Emerging Frontiers in Chemical Sciences, EFCS-2017" conducted during September 23-25, 2017. This volume is an account of most of the contributions presented at the conference.

Chemistry, often referred to as the central science, is a unifying theme across disciplines. Nothing we come across in the physical world without atoms, molecules or other chemical entities. In that respect, chemistry is a branch of science that connects the world . Therefore, those who teach, learn and study chemistry are in fact rendering their valuable service to the global community. Interaction of scientists, academicians and students lead to new ideas which can transform the society. Seminars and discussions are organised to achieve this end.

This International Conference is the beginning of such an exercise in our college, with a view to bring together people engaged in the pursuit of science in this region. This event is very rich with the participation of eminent National and International scientists and with most respected Prof. C. N. R. Rao, FRS, as the inaugural speaker. Another attraction is the honouring ceremony of one of our most senior, faculty members of the department, with the lifetime achievement award for distinguished service to the discipline. This time we are honouring Prof. K. Shahid Latheef for his meritorious service.

We would like to thank all the participants for their contributions to the Conference and Proceedings. We would also like to place on record our appreciation and gratitude for the sponsors of the programme - SERB, KSCSTE, American Chemical society, Royal Society of Chemistry, the College Managing Committee, M/s Ambernath Organics Pvt Ltd, APCO- Hyundai group and others.

In this volume abstracts of invited lectures are given in the beginning followed by abstracts of posters/papers presented at the conference. The committee has tried its level best to make this collection a comprehensive one. The Proceedings provide a permanent record of what was presented. This presents a snapshot of the state of development of the subject at the time and will be invaluable for that reason.

We thank all those who have contributed to the successful organisation of the conference.

September 19, 2017

Organising Committee
EFCS 2017

International Conference
on

Emerging Frontiers in Chemical Sciences
EFCS 2017
Farook College (Autonomous)

Day 1- Saturday **23/09/2017** **Inaugural Session**	
4.00–4.02 pm	Invocation
4:02–4.10 pm	Welcome speech: Dr. A. K. Abdul Rahim, Head, Dept. of Chemistry, Farook College
4.10–4.15 pm	Presidential Address: Prof. E. P. Imbichikoya, Principal, Farook College
4.15–4.20 pm	Programme briefing: Prof. T. Pradeep, Chairman, Organizing Committee (IIT Madras)
4.20–4.25 pm	Introducing the Chief Guest: Prof. V. M. Abdul Mujeeb, Vice Chairman, Organising Committee (Director, School of Chemical & Physical Sciences, University of Calicut)
4.25–4.40 pm	**Inauguration: Prof. C. N. R. Rao, FRS**
4.40–4.45 pm	Adorning Ponnada to Prof. C. N. R. Rao Mr. P. K. Ahammed, President, Managing committee, Farook College Presenting memento to Prof. C. N. R. Rao Mr. K.V. Kunhammed Koya, Secretary, Managing committee, Farook College
4.45–4.50pm	Release of conference proceedings: Dr. K. Mohammed Basheer, Vice Chancellor, University of Calicut
4:50–5.00 pm	Honouring: Prof. Shahid Latheef with the 'Lifetime achievement award of distinguished service to chemical sciences' Honouring statement: Prof. P. E. M. Abdul Rasheed, Joint Convener, Organizing Committee, Controller of Examinaton, Farook College Reply speech by Prof. Shahid Latheef
5:00-5:10 pm	Felicitations: Dr. Suresh Das, Executive Vice President, KSCSTE Mr. C. P. Kunhimohammed, Manager, Farook College
5.10–5.15 pm	Vote of thanks: Dr. Shalina Begum.T, coordinator, Organizing Committee

Technical Session 1 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Prof. K. K. Unnikrishnan, Retired Professor, President, FALChem	
5.30 – 6.15 pm	Inaugural Lecture: Prof. C. N. R. Rao, FRS, JNCASR, Bengaluru
6.15 –6.55 pm	Prof. T. Pradeep, IIT Madras, Chennai
6.55– 7.35 pm	Prof. Thomas J. Colacot, Johnson Matthey, USA
8.00- 9.00 pm	**Conference Dinner - Marg Copper Folia** (Transportation to dinner venue will be arranged outside the auditorium)
Day 2 - Sunday **24/09/2017**	
Session 2 **Venue - Audio Visual Theatre** 9.00-10.30 am	
An Interactive session for selected school students with Prof. C. N. R. Rao, FRS	
Session 3 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Prof. P. Raveendran, University of Calicut	
8.30-9.00 am	Prof. E. D. Jemmis, IISc Bengaluru
9.00-9.30 am	Prof. Shigeyuki Yagi, Osaka Prefecture University, Japan
9.30-10.00 am	Prof. A. Ajayaghosh, NIIST, Thiruvanathapuram
10.00-10.30 am	Prof. Suresh Valiyaveetil, National University, Singapore
10.30- 11.00am	**Conference Photograph** **Tea Break**
Session 4 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Dr. Daisy Joseph, BARC	
11.00–11.30am	Prof. Vasudevan Biju, Hokkaido University, Japan Erudite fellow lecture sponsored jointly by Kerala State Higher Education Board & CUSAT
11.30–12.00 pm	Prof. Chandrabhas Narayana, JNCASR, Bengaluru
12.00–12.30 pm	Prof. Ibrahim Ibnusaud, MG University, Kerala
12.30– 1.30 pm	**Lunch**

Session 5 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Prof. K. M. Abdur Rasheed, Director, AMU Centre, Kerala	
1.30–2.00 pm	Prof. K. Vijayamohan K. Pillai, CECRI, Karaikudi
2.00–2.30 pm	Prof. I. N. N. Namboothiri, IIT, Bombay
2.30–3.00 pm	Prof. Subi Jacob George, JNCASR , Bengaluru
3.00–3.15 pm	**Tea Break**
	Session 6 **Venue - Yousef Al Saqer Auditorium**
	Chairman: Prof. V. M. Abdul Mujeeb, Director, School of Chemical & Physical Sciences, University of Calicut
3.15–3.45 pm	Prof. Kana M. Sureshan, IISER, Thiruvananthapuram
3.45–4.15 pm	Prof. Gopinathan Sankar, University College London, UK
4.15 -4.45 pm	Prof. Mohammed Yusuff, CUSAT, Kerala
	Session 7 **Venue - Yousef Al Saqer Auditorium**
	Chairman: Prof. K. Muraleedharan, University of Calicut
10.30am-4.00 pm	Poster Presentations
4.45- 7.30 pm	**Sightseeing**
7.30- 8.30 pm **8.30 – 9.30 pm**	**Cultural Programme** **Venue: Yousef Al Saqer Auditorium** **Dinner**
Day 3 - Monday **25/09/2017**	
Session 8 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Prof. Abraham Joseph, University of Calicut	
8.30–9.00 am	Prof. Hassan Y.Aboul-Enein, National Research Center, Egypt
9.00–9.30 am	Prof. H. Ila, JNCASR, Bengaluru
9.30–10.00 am	Prof. G. Unnikrishnan, NIT Calicut

	Session 9 **Venue - Yousef Al Saqer Auditorium** **Oral Presentations**
	Chairman: Prof. P. Mohamed Shafi, Retired Professor, University of Calicut
10.00–10.45 am	Miss. Arsha Kusumam, University of Calicut Miss. Arya Kripalaya, Bharathiar University Miss. Nair Tulasi Radhakrishnan, NIT, Calicut Miss. Neethu K Sanker, Bharathiar University Mr. Rahul Kaushik, NIT, Kurukshetra Miss. Sumy Joseph, IISc, Bengaluru
10.45-11.00 am	**Tea Break**
Session 10 **Venue - Yousef Al Saqer Auditorium**	
Chairman: Prof. K. Koyatty, Retired Professor, Farook College, Director IAME.	
11.00–11.30 pm	Prof. Santhosh Chidangil, Manipal University
11.30–12.00 pm	Prof. Sandhyarani, NIT, Calicut
12.00- 12.30 pm	Dr. A. Seema, CMET, Thrissur
12.30–12.35 pm 12.35–12.40 pm 12.40–12.45 pm 12.45-12.55 pm 12.55-1.00 pm	Valedictory Function and Concluding Remarks Welcome speech: Prof. P. E. M. Abdul Rasheed, Joint Convener, Organizing Committee Presidential Address: Prof. E. P. Imbichikoya, Principal, Farook College Honouring Dr. A. K. Abdul Rahim, Head, Dept. of Chemistry, Farook College Presenting memento to Dr. A. K. Abdul Rahim: Adv. M. Mohamed, Former Manager, Farook College Managing Committee. Prize distribution for best paper and poster presentation: Prof. T. Pradeep, Chairman, Organizing Committee (IIT Madras) Vote of thanks: Mrs. Kavitha. A. P, coordinator, Organizing Committee
1.00–2.00 pm	**Lunch**

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