Maulana Azad National Institute of Technology, Bhopal

REPORT OF THE STTP

Title: EduSPARC, A Free Online Lecture Series under SPARC for Students and Faculty of Higher Education

Duration: 2 February, 2021 to 11March, 2021

Department: Chemistry

Brief Programme Report

An online lecture series of 42 lectures was organized under SPARC project of MANIT, Bhopal (India), University of St. Andrews (UK) and DCRUST, Murthal (India). About 250 students from India and abroad registered for the event. Total 7 modules, each of 6 lectures were delivered covering the topics, Crystal Structure and Diffraction, Scanning and Transmission Electron Microscopy, X-ray and Electron Spectroscopy for Materials Analysis, Characterisation of Solids Using Vibrational and NMR Spectroscopy, Thermal and Scanning Probe Methods, Applications of Heterogeneous Catalysis, Introduction to Electrochemical Energy Conversion Using Fuel Cell Technology, Materials Selection and Systems Considerations for Solid Oxide Fuel Cells. On the inaugural day participants were briefed about the SPARC, details of the ongoing project and about all the five partners and their institutions [MANIT, DCRUST & STAN (UK)]. Participants attended the online course very enthusiastically and certificates were issued to all the attendees.

Inauguration Photo

The program was conducted through online mode on Micro Soft Team portal of University of St. Andrews, UK and no formal inauguration function was organized. No photographs were clicked during the lecture series. However, each day attendance of the participants was downloaded.

Activity Photo



Please also see Annexure 1

Important speakers:

Dr Richard Baker
Principal Investigator (Foreign), SPARC Project
Senior Lecturer
Department of Chemistry
University of St. Andres
St. Andrews (United Kingdom)

Prof. Paul Wright
Co-PI (Foreign), SPARC Project
Professor,
Department of Chemistry
University of St. Andres
St. Andrews (United Kingdom)

Affiliation and Place of the Participants: Please see Annexure 2

Coordinators Name: Dr. Jyoti Mittal, Co-PI (Indian), Assistant Professor, Department of Chemistry, Maulana Azad National Institute of Technology, Bhopal (India)
&
Dr. Ashok K. Sharma, Co-PI (Indian), Professor, Department of Chemistry, Deenbandhu Chhotu Ram University of Science & Technology, Murthal, Sonipat (India)

EduSPARC

A Free Online Lecture Series under SPARC
for Students and Faculty of Higher Education

From : 02 February,2021 to 11 March,2021

About EduSPARC

EduSPARC is a free online course organized under Ministry of Education, Government of India (GoI) sponsored Scheme for Promotion of Academic and Research Collaboration (SPARC). SPARC is a flagship program of GoI, which aims at improving the research ecosystem of India's Higher Educational Institutions by facilitating academic and research collaborations between Indian high rank Institutions and the best institutions in the world from 28 selected nations to jointly solve problems of national and/or international relevance. In 2019 a high value collaborative SPARC project entitled 'Design and Evaluation of Nanostructured Materials for Wastewater Treatment' was sanctioned to Dr. Alok Mittal and Dr Jyoti Mittal of Maulana Azad National Institute of Technolgy (MANIT), Bhopal, Dr. Ashok Kumar Sharma of Deenbandhu Chhotu Ram University of Science & Technology (DCRUST), Murthal and Dr. Richard T. Baker and Prof. Paul A. Wright of University of St. Andrews (STAN), St. Andrews (United Kindom).

One of the components of the SPARC is visits and long-term stay of international researchers associated with the project in Indian institutions to pursue teaching. Both Dr. Richard Baker and Prof. Paul Wright visited MANIT and DCRUST in the year 2019 and conducted classes for the students and faculty. The activity could not be held in the year 2020 due to pandemic and now GoI allowed conduction of online classes for the benefit of the students.

EduSPARC is STAN – MANIT – DCRUST joint effort to teach post-graduate, Ph.D., post-doctoral students and faculty members of Institutions of higher education and Universities. Starting from 2nd February, this 38 days long online lecture series will provide in-depth knowledge and valuable insights in the field of crystal structure, characterization of materials, catalysis and fuel cells by the distinguished faculty members from University of St. Andrews (UK) Dr. Richard Baker and Prof. Paul Wright.

SPARC
Scheme for Promotion of Academic and Research Collaboration

DCRUSTM

University of St Andrews

MHRD
GOVERNMENT OF INDIA
सत्यमेव जयते

Speakers



Dr. Richard Baker

Dr Richard Baker is a faculty in Chemistry and Materials Science at St Andrews since 2005. He obtained a BSc in Chemistry from Durham and a PhD in Chemical Engineering and Chemical Technology from Imperial College, London. He is a Chartered Chemist, MInsP and was elected FRSC in 2016. He has worked with British Steel plc. and University of Dundee (UK). He has supervised eight Masters and ten PhD students to completion, as well as nine postdocs. He has acted as 'oversees expert' on three Spanish grants on hydrodechlorination catalysis. Baker has published 78 research articles, reviewed for a dozen international journals and made over 25 keynote or invited presentations. He was Editor, Secretary/Treasurer and then Chair of the Electron Microscopy and Analysis Group of the Institute of Physics. His research interests are Fuel Cells, catalysis, electron microscopy, XRD, Scanning and High Resolution Transmission Electron Microscopy (SEM and HRTEM) and Magnetic Resonance Imaging (MRI) etc.



Prof. Paul Wright

Prof Paul Wright is working with University of St. Andrews since 1994 and presently Head of Physical Chemistry Teaching. He completed Ph.D. degree from Cambridge university in 1986 and then worked for Shell R&D (Netherlands), Davy-Faraday Laboratory, London till 1994. He was awarded the RSC/SCI Barrer Prize in 1999 and the ICI Readership in 2002-2004. He has served as Chairman of the British Zeolite Association and Secretary and then Vice President of the International Zeolite Association. He has published more than 200 research papers and 6 Book Chapters. He has more than 9000 citations and his present h-index is 55. He has supervised 25 completed PhDs and 9 post-doctoral researchers at St. Andrews.

Organisers



Dr. Jyoti Mittal

Assistant Professor
(Co-PI SPARC Project)
Department of Chemistry
Maulana Azad
National Institute of Technology
Bhopal (Madhya Pradesh)



Dr. Alok Mittal

Professor
(PI SPARC Project)
Department of Chemistry
Maulana Azad
National Institute of Technology
Bhopal (Madhya Pradesh)



Dr. Ashok Kumar Sharma

Professor
(Co-PI SPARC Project)
Department of Chemistry
Deenbandhu Chhotu Ram
University of Science & Technology
Murthal (Haryana)

Schedule

Crystal Structure and Diffraction

Dr Richard Baker

February 02, 2021	- Tuesday	1430 - 1630 hrs
February 03, 2021	- Wednesday	1430 - 1630 hrs
February 04, 2021	- Thursday	1430 - 1630 hrs

Scanning and Transmission Electron Microscopy

Dr Richard Baker

February 09, 2021	- Tuesday	1430 - 1630 hrs
February 10, 2021	- Wednesday	1430 - 1630 hrs
February 11, 2021	- Thursday	1430 - 1630 hrs

X-ray and Electron Spectroscopy for Materials Analysis

Dr Richard Baker

February 16, 2021	- Tuesday	1430 - 1630 hrs
February 17, 2021	- Wednesday	1430 - 1630 hrs
February 18, 2021	- Thursday	1430 - 1630 hrs

Characterisation of Solids Using Vibrational and NMR spectroscopy, Thermal and Scanning Probe Methods

Dr Richard Baker

February 22, 2021	**- Monday**	**1430 - 1630 hrs**
February 23, 2021	**- Tuesday**	**1430 - 1630 hrs**
February 24, 2021	**- Wednesday**	**1430 - 1630 hrs**

Applications of Heterogeneous Catalysis

Prof Paul Wright

February 25, 2021	**- Thursday**	**1430 - 1630 hrs**
February 26, 2021	**- Friday**	**1430 - 1630 hrs**
March 01, 2021	**- Monday**	**1430 - 1630 hrs**

Introduction to Electrochemical Energy Conversion Using Fuel Cell Technology

Dr Richard Baker

March 02, 2021	- Tuesday	1430 - 1630 hrs
March 03, 2021	- Wednesday	1430 - 1630 hrs
March 04, 2021	- Thursday	1430 - 1630 hrs

Materials Selection and Systems Considerations for Solid Oxide Fuel Cells

Dr Richard Baker

March 09, 2021	- Tuesday	1430 - 1630 hrs
March 10, 2021	- Wednesday	1430 - 1630 hrs
March 11, 2021	- Thursday	1430 - 1630 hrs

To register, fill up the given google form - https://forms.gle/drV9H6y2FHW6ngoA8

Registration for the course is free of cost (Only for 250 participants). Students selected for the course will recieve the link of the online platform on their email.

Please Note - An e-certificate will be provided to each participant on the basis of their 100% attendance.

For any queries:
wschemmanit@gmail.com

Annexure 2

Name of Affiliated Institute/University

Maulana Azad National Institute of Technology, Bhopal; Deenbandhu Chhotu Ram University of Science & Technology, Murthal; School of Nanoscience and Technology, Shivaji University, Kolhapur; University of Mumbai; University of Rajasthan, Jaipur; Govt.M.L B Girls P.G College, Bhopal; Kurukshetra University; RTM Nagpur University; VPM B N Bandodkar College of Science; Rashtrasant Tukdoji Maharaj University Nagpur; S. V. National Institute of Technology, Surat; Vikram University, Ujjain; Institute for Excellence in Higher Education, Bhopal; University of Kota, Kota; Wilson College, Mumbai; Barkatullah University,Bhopal; Lachoo Memorial College of Sc. and Tech., Jodhpur, Rajasthan;Sri Sathya Sai College For Women, Bhopal; Indian Institute of Teacher Education, Gandhinagar; Career College Bhopal; S. S. in Chemistry and Biochemistry, Ujjain; The Institute of Science, Mumbai; Delhi Technological University, Delhi;Govt. Girls College Jaisalmer, JNV Jodhpur; VNSGU SURAT; GES's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik; Maharshi Dayanand College, Parel, Mumbai,University of Mumbai; Jyoti Nivas College Autonomous, Bengaluru; B.K.Birla College, Kalyan; Devchand College Arjunnagar, Maharashtra; Veer Savarkar Govt Colleges , Obedullagunj; SCRS Govt. PG College, Swm; The Mandvi Education Society Science College, Mandvi, Gujarat; Dr. Homi Bhabha State University, Mumbai; S.N.K.P.Government College,Neemkathana, Sikar; NGSP college of Pharmacy; Central University of Haryana, Mahendergarh; Nagpur University Nagpur; MAA Bharti PG College, Kota; ITM (SLS) University, Vadodra; E- Parisaraa Pvt Ltd, Bengaluru; Atmiya University, Rajkot; Karmaveer Bhaurao Patil college Vashi, Navi Mumbai; B.N Bandodkar College of Science, Thane; CSIR- National Physical Laboratory, Delhi; NRI group of Institutions, Bhopal; Maharshi Dayanand University, Rohtak; Sant Gajanan Maharaj College of Engineering; Delhi University; S.S. Jain Subodh P.G. Autonomous College, Jaipur; Extol Institute of Management, Bhopal; Deshbandhu College, University of Delhi; Savitribai Phule Pune University, Pune; Baba Mastnath University, Asthal Bohar; Mount Carmel , Bengaluru; National Institute of Technology Raipur; Navrachana University, Vadodara; Goverment Institute of Science Nagpur; Amity University Jaipur; R P S Degree College Balana , Mahendergarh; Amrita Vishwa Vidyapeetam, Coimbatore; S.P.C.Govt College Ajmer; Rao Prahlad Singh Degree College Balana Mahendergarh; NITTTR CHANDIGARH; GC Kharkhara, Rewari, IGU Meerpur; Jaypee University of Information Technology, Waknaghat, Solan; Shoolini University of Biotechnology and Management Sciences, Solan (HP); Chandigarh University; Prof Ram Meghe College of Engineering and Management Badnera