A ONE DAY CONFERENCE ON:

Macromolecular Characterization of Coal and Hydrocarbon Components for Future

JOINTLY ORGANIZED BY

Date :

19th November 2018

Venue :

School of Petroleum Technology, PDPU, Gandhinagar 382007, Gujarat.

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PDPU STUDENT CHAPTERS

Table of Content

Acknowledgment

This report is based on a conference – “Macromolecular characterization of coal and hydrocarbon components for future” – which was jointly organized by the School of Petroleum Technology, Pandit Deendayal Petroleum University, Gandhinagar and S. N. Bose National Centre for Basic Sciences, Kolkata.

Director General of PDPU and Director-SPT was thankfully acknowledged for their due support in every step of the conference. The convener would like to thank the Director, SNBNCBS, Kolkata and Chairman-BOSE125 Outreach program for their full cooperation and support for making this conference a total success.

Asset Manager-Ahmedabad Asset and Head, Institute of Reservoir Studies, ONGC are thankfully acknowledged for the ready support whenever required. Special Thanks to Mr. O. N. Gyani for his presence as Chief Guest in the Inaugural special session on S. N. Bose on the conference. Prof. S.K. Pal of SNBNCBS is thankfully acknowledged for accepting my invitation as ‘Guest of honour’ of the special session and to deliver a talk. I specially mention the administrative heads, Director-SNBNCBS, Director General-Geological Survey of India, Asset Manager-Ahmedabad Asset, ONGC, Head-Institute of Reservoir Studies, ONGC, Director-Institute of Plasma Research, Head G &G, Gujarat State Petroleum Corporation, Head-Reliance Industry limited and Director-School of Petroleum Technology, of all the speakers for their administrative approval for the topic of their talk.

I would like to especially thank all the invited speakers who came to School of Petroleum Technology, PDPU from areas of their own expertise to deliver talk aligned to the conference theme. My sincere thank to all faculty members, industry professionals, research scholars and students who participated in the conference and took part in the intensive discussions on the delivered talks.

Sponsored support from Oil and Natural Gas Corporation (ONGC), Ahmedabad for the conference is specially acknowledged.

Director –SPT and the faculty members of PDPU are acknowledged for their gracious presence in the conference. Systematic and constant support was provided by SEG – SPG – EAGE Student Chapter of PDPU, Gandhinagar for which they are acknowledged and thanked. I convey my sincere thank to SPT admin staff and the PDPU amenity team for handling all the arrangements for our comfort and convenience. They have provided with valuable support throughout the conference for which I am grateful to them. This report was prepared by a team consisting of Harsh Patel, Suryapratapsingh Bhadauria and Mitkumar Bambhrolya.

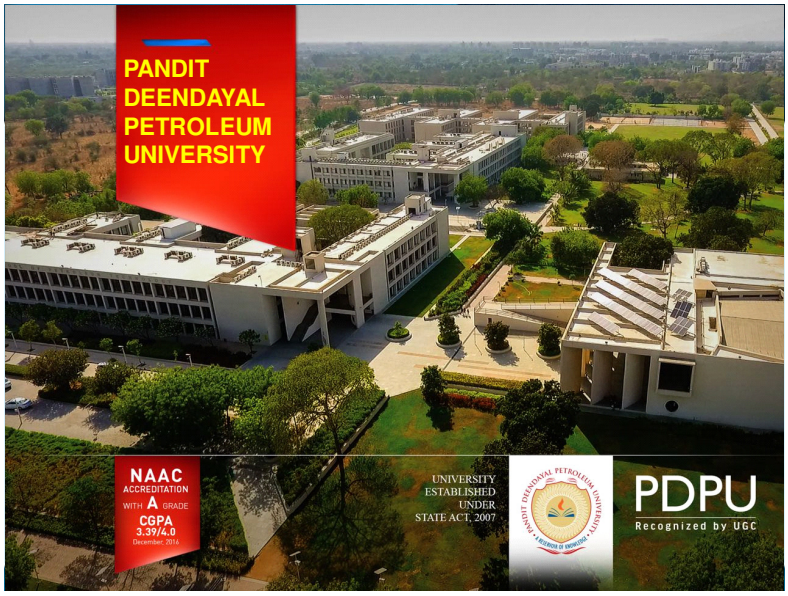
Introduction

It is said that hydrocarbon has changed the history. The past 100 years have been pockmarked with oil wars, oil shocks and oil spills. And even in the 21st century its dominance remains entrenched. Even if the world switched to an energy source independent of petroleum, one must not forget the fact that petroleum is an integral part of modern life in terms of the things it is used to make beyond gasoline and other fuels and hydrocarbon may even change present. In the first 15 years of the new millennium there is six-fold increase in renewable energy generation. It seems to be encouraging trend. Unfortunately, this development is dwarfed by the surge of fossil fuel consumption during the same period. In two decades, crude oil utilization increased by nearly 32%, natural gas by 63% and coal consumption striking 78%.The developments present a dual challenge for the environmentally conscious fuel scientist. There is clear need to continue developing more efficient and cost effective methods for delivering renewable energies. Meanwhile, the expanding use of fossil fuels suggests there must be no setup in attempting to devise ways of utilizing fossil fuels more efficient and in environmentally more sensitive way. Apart from these, nowadays crude oil characterization is encountered at molecular level to understand the physical and chemical behaviour of SARA components i.e. Saturates, Aromatics, Resins and Asphaltenes. Moreover, the characterization have been the most interested domain for researchers all over the world for determining ultimately an Enhanced oil recovery. On the occasion of 125th birth anniversary of Prof. Satyendra Nath Bose one day conference on “Macromolecular characterization of coal and hydrocarbon components for future” was jointly organized by School Of Petroleum Technology, Pandit Deendayal Petroleum University and S.N Bose National Centre for Basic Sciences.

Pandit Deendayal Petroleum University (PDPU)

Pandit Deendayal Petroleum University's 100 acre campus is located in Gandhinagar, which is the capital city of Gujarat and located 23 Km North from a well-developed city called Ahmedabad with a population of 8 million people. The city is famous for its remarkable cultural development and social life. PDPU offers multiple courses ranging from engineering, arts and management along with maximum exposure and opportunities to its students through various national and International exchange programs with best University worldwide. For development of its faculties and staff the University endeavours for various Joint Exchange and Research programs.

Pandit Deendayal Petroleum University (PDPU) has been established by GERMI as a Private University through the State Act enacted on 4th April, 2007. The University offers programs to address the need for trained human resources in the domains of Science, Technology, Management and Humanities. It intends to broaden the opportunities for students and professionals to develop core subject knowledge which are duly complemented by leadership training interventions, thereby helping the students to make a mark in the global arena. This objective is being further addressed through a number of specialized and well-planned undergraduate, post-graduate and doctoral programs as well as intensive research projects.



School of Petroleum Technology

School of Petroleum Technology (SPT) started in the year 2007 at the University. The School caters to the academics and industries by creating budding Petroleum Engineers. It offers B. Tech. M. Tech., & Ph. D programs to the students. The School is strategically located in the oil and gas capital of India. Interaction and knowledge sharing from the industry, benefits the students a lot. SPT faculties have a rich industrial as well as academic experience. Students and faculties are engaged in practical research and many papers are documented in reputed peer reviewed journals and conference proceedings. The School organizes expert lectures, conclaves, seminars and workshops and also undertakes projects in collaboration with industry, to strengthen Industry Academia relationship. This not only helps in overall development of students as well as faculty members, but also makes the students aware of the industry expectations, which In turn helps in making them not only employable but deployable as well.

Objective of the Conference

During the last decade, the oil industry faced a scenario with records of high oil prices, price volatility and increasing supplies of emerging unconventional crude oil with support from renewables. Overall, the present picture we face is one of a gradually degrading environment and of a diminishing resource base. Many of the alterations suffered by the planet are of an irreversible nature. No doubt, large proportion of the readily extractable oil has already been used up. The present rush to gas can indeed delay the end of plentiful hydrocarbon supplies. Unfortunately, the 'renewables' options do not appear as attractive, close up, as they do on first mention.

Against this background of uncertain supply, a major long-term share for coal and heavy hydrocarbon components for power generation and as a source of chemical feedstock appears inevitable. Coal, petroleum, organic chemicals, and biomass are the main raw materials from which precursors of carbon materials are obtained and presently the field of carbon materials has turned into a multi- and interdisciplinary science. The science and technology of carbon materials are in the process of continuous development and are constantly finding ways to improve the properties of the already existing materials even at the nanometric scale.
Coal, petroleum, organic chemicals, and biomass are the main raw materials from which precursors of carbon materials are obtained and presently the field of carbon materials has turned into a multi- and interdisciplinary science. The science and technology of carbon materials are in process of continuous development and are constantly finding way to improve the properties of already existing materials even at the nanometric scale. Synthetic fuels are generally understood to include liquid and gaseous fuels as well as clean solid fuels produced by the conversion of coals, oil shales, tar sands and various other form of biomass. Since all coals are carbon rich solids, they can be used as precursors for new carbon based materials. The main aim of this conference is to provide awareness and knowledge to the budding students, researchers, working professionals and scientists, the importance of macromolecular characterization of coal and petroleum for future use as source of energy and chemicals in a much cleaner way.

An analogy with medical science could be put for better understading of the present situation. **Genomics** is revolutionary in that causal relations in medical science are being established with scientific exactitude and fundamental understanding. Genomics is creating a predictive medical science that was but a dream for previous generations. **Petroleomics** embodies the establishment of structure—function relations in petroleum science with particular focus on asphaltenes, the most enigmatic of petroleum components. Correlative phenomenology is giving way to proper predictive science based in detailed petroleum chemical composition. With the help of many new and evolving techniques of characterization in molecular level, today coal and petroleum components are seen in various ways of utilization other than conventional methods. Synthetic fuels are generally understood to include liquid and gaseous fuels as well as clean solid fuels produced by the conversion of coals. Since all coals and heavy crude oil components are carbon-rich, they may be used directly as precursors to obtain solid carbon materials of various uses.

The main aim of this conference is to provide awareness through percolation of knowledge to the budding scientists, engineers, working professionals, researchers, the importance of macromolecular characterization of coal and petroleum for future use as source of energy and

chemicals in a much cleaner and greener way. The invited speakers in this conference are currently active in their field of expertise and delivered lectures in their chosen topic aligned to the conference theme which definitely improved our knowledge and stimulated for further discussion in future for the sustenance of the human civilization. I would quote **Oliver C. Mullins,** Scientific advisor, Schlumberger –Doll Research from the preface of his edited volume: Asphaltenes, Heavy Oils and Petroleomics:

"The most important attribute any thriving technical field must have an injection and infusion of dedicated, expert, young scientist who have absorbed from their elders the fascination of scientific mystery coupled with the fundamental satisfaction of revelation and providing contribution"

Conference Timeline

- Inaugural and Special Session on SN BOSE
- Session Phase -I (Crude oil)
- Session Phase - II (Coal, Shale & Carbon materials)
- Closing Ceremony

Speakers

1. Prof. S. K. Pal

(Senior Professor, SN Bose National Centre for Basic Sciences, Kolkata)

Prof. S.K Pal obtained PhD in Physics from Indian Association of Cultivation of Science (IACS) in 2000, then moved to California Institute of Technology (CALTECH) to work with Professor Ahmed H. Zewail (Nobel Laureate in Chemistry 1999) till the end of 2003. Currently, Dr. S. K. Pal is a senior professor in S.N. Bose National Centre for Basic Sciences, India.He is the recipient of Abdul Kalam Technology Innovation National Fellowship 2018, Professor P. K. Bose Memorial Award 2016 (Indian Chemical Society), UKIERI: UK-India Education and Research Initiative (Nanotechnology) Award 2007. One of his researches is focused on Ultrafast Spectroscopy of Molecules and Materials for the potential applications in Environments, Energy and Health. He has co-authored more than 210 publications and 5 books, given more than 200 invited presentations, and has >9800 citations. He is also a co-inventor for more than 20 patents. Till date 20 PhD students completed their degree and 15 are enrolled under his sole supervision. He is the editors of the journals Editors: EPJ techniques and Instrumentation (Springer, London), Advances in Physical Chemistry (Hindawi, USA). He is continuously serving as visiting professor in several places including CALTECH, USA, TU Brunswig, Germany, University Aarhus, Denmark, Durham University, UK, University Leiden, Netherlands etc.

"Interdisciplinary approach in optical spectroscopy for the development of indigenous technology"

- **Highlights:**
- Country's self-reliance (independence) is the heart of any successful national science and technology planning. However, considerations like security, time factor, performance guarantee and costs often compel us to buy indispensable advanced technology of healthcare from international market. Independence in technology does not mean that we have to essentially make everything ourselves, however, need to acquire capacity to do so when things come to a head.Self-reliance is also equally important when sustainable, effective linkages between the clinical and community settings become unavoidable for the improvement of patients' access to preventive and chronic care services. Our scientific research activities for the self-reliance in the healthcare technology development from the corner of instrumentation would be highlighted in the proposed talk. Our collaborative research activity-based on optical spectroscopy relevant in the petroleum exploration industry would also be discussed.

2. Prof. Rajib Bandyopadhyay

(Professor, SOT,Pandit Deendayal Petroleum University)

Dr. Rajib Bandyopadhyay is a Professor and Head of the Department of Science in Pandit Deendayal Petroleum University, Gandhinagar. He is a gold medalist in MSc from Jadavpur University, Kolkata and received his PhD degree from National Chemical Laboratory, Pune in 1997. Later he did postdoctoral research in Japan under JSPS fellowship and Germany under Humboldt fellowship. Before joining PDPU, Prof. Bandhopadhyay worked in senior management position in the R&D sectors of various multinational companies including Sud-Chemie, Owens Corning and Sika. His area of research is Heterogeneous Catalysis and Materials Chemistry.

"S. N. Bose: An underrated genius"

❖ Highlights:

3. Shri Omkar Nath Gyani

(Head Institute of Reservoir Studies, ONGC Ahmedabad)

Shri Omkar Nath Gyani is a petroleum Engineer from from ISM Dhanbad and joined ONGC in 1987. Subsequently, he had 7 year stint from 2005 in IRS, Ahmedabad where he contributed to IOR schemes, value addition in EOR processes and reservoir simulation studies. From 2012, he has been a key member of B&S Asset team and as Area Manager dealt with production and reservoir management of oil & gas fields Asset. As on 1st Feb 2018, he joined as Head IRS and is contributing in field development planning, recovery enhancement through IOR/EOR Schemes.

"Challenges in Mature field redevelopment"

❖ Highlights:

- Multi-phase flow through porous media
- Complex inter-play of forces
- Depleting Reservoir Energy
- Increased Water Production
- Aging & Inadequate Surface facilities
- Water- Management
- Dealing With Late-life Excessive Water production

4. Dr. Uttam Kumar Bhui

(Associate Professor, SPT, Pandit Deendayal Petroleum Technology)

Dr. Uttam Kumar Bhui acquired his undergraduate, graduate and Ph. D. degree from Jadavpur University. Dr. Bhui has both academic experience as well as industrial expertise. He has working experience as Reservoir Engineer in ONGC for nearly 3 and half years. After separating from ONGC, he joined as a faculty member in Jadavpur University (2002 to 2008). He is in his present academic position since 2008 involved mainly in teaching and research activities. Presently he is doing research in the area of characterization of hydrocarbon crudes and their application in exploration and exploitation activities to meet the futuristic need of upstream petroleum sector

His Specialisation and expertise involved:

- ✓ Petroleum crude characterization in molecular level for application in flow assurance and EOR
- ✓ Shale oil/Shale gas: Maturity assessment of hydrocarbon resources by spectroscopic methods,
- ✓ Coal: Molecular characterization for unconventional HC prospect and future use

"Designing saline water for EOR from clay bearing hydrocarbon reservoir: An experimental approach for understanding molecular level interaction mechanism"

❖ Highlights:

- Designing low-saline water flooding for EOR in clay laden hydrocarbon reservoirs.
- Clay characterization methods and Crude oil characterization in molecular level
- Experimentation with clay-crude oil- and saline water (NaCl, $CaCl_2$ and $MgCl_2$) for effective designing of EOR fluids
- Maximum oil recovery does not only depend on salinity but also the type of cation present in the saline water.

5. Shri Sujit Mitra

(Chief Manager – Domain Expert of Heavy Oil, IRS, ONGC Ahmedabad Asset)

Shri Sujit Mitra is Chief Manager (Reservoir) at Institute of Reservoir Studies, ONGC, Ahmedabad and working as reservoir development engineer of the Heavy oil fields of ONGC and as Head of Thermal process laboratory. For the last 12 years worked in In-situ combustion of Balol and Santhal fields of ONGC. Also worked in cyclic steam project of Colombia and Venezuela. He has conceptualized heavy oil development through polymer and Cyclic steam stimulation in Indian fields as well. He is involved in development of MBA basin operated by CAIRN India. Sir has More than twenty years of experience as reservoir engineer in ONGC.

"Heavy oil characterization and EOR: Challenges and opportunities"

❖ Highlights:

- Heavy crude oil characterization
- Heavy oil reserves
- Recovery processes for heavy crude
- Steam Injection and steam circulation
- Steam assisted gravity drainage
- In-situ combustion

6. Ms Rincy Anto

(Research fellow, SPT, Pandit Deendayal Petroleum University)

Ms Rincy Anto has completed B. Tech in chemical engineering from Dharamsinh Desai University, Nadiad and completed her M. Tech in Petroleum Engineering from Pandit Deendayal Petroleum University. She is currently Pursuing Ph.D from Pandit Deendayal University. She is employed as a junior research fellow at IIT Gandhinagar working under project for DRDO on "flow improvement of fine and ultra-fine AP powders through surface modification".

"Optical characteristics of petroleum crude – surfactants – brine solutions: molecular level insight for designing injection fluid for EOR"

❖ Highlights:

- Determination of the entrapped crude oil components inside the micelles during surfactant flooding is challenging as well as important for designing the injection fluid
- The crude characterization indicated the presence of 3-5 polycyclic aromatic hydrocarbon in the asphaltene component.
- The addition of anionic surfactant decreased the particle size whereas it increased on addition of non-ionic surfactant.
- There is lower state of aggregation on addition of SDS indicating better dispersion of crude oil sample in aqueous solution.

7. Shri Kunal Mehta

(General Manager – Chemistry, ONGC Ahmedabad Asset, Ahmedabad)

Shri Kunal Mehta is General Manager(Chemistry) at ONGC, Ahmedabad Asset, Ahmedabad. Sir has completed his M.Sc from Delhi University and has pursued MBA from Indira Gandhi National Open University (IGNOU).

Shri Mehta has vast technical expertise in all oil field related operations and managerial acumen for providing timely resources & technologies for operations and liquidating field complications. He has received various prestigious awards like Chairman's award and various merit awards.

Shri Mehta has served as mentor for M. Tech. Course Project work for student of Dibrugarh University & is nominated as mentor for Chemistry for Ahmedabad Asset. He is a Core member of OHSA implementation team of Hazira Plant and regular faculty of Training Centres of Hazira & Sivsagar.

"Hydrocarbon processing: Futuristic issues and challenges"

❖ Highlights:

- Benefits of Chemical injection
- Effective Demulsification
- Increased Production of Tough emulsions / Crude with higher water content.
- Low Temperature Demulsifiers to suit the field conditions & operational constraints.
- H2S mitigation
- Pipeline Integrity

8. Dr. Sudip Bhattacharya

(Director – Geology,Natural Energy Resources, Mission – 2B, GSI, Kolkata)

Dr. Sudip Bhattacharya is now posted as Director (geology) Shale Gas Exploration Project & Specialised Coal Petrography Laboratory, Natural Energy Resources in Geological Survey of India. He completed his B.Sc. in 1988 and M.Sc. in Geology in 1991 from Calcutta University and was awarded Gold Medal for standing first. Dr. Bhattacharya was also associated with a number of research projects on igneous and sedimentary aspects. Presently he is looking after Shale Gas Exploration in Jharia Coalfield and research projects on Coal Petrology at Specialised Coal Petrography Laboratory, Natural Energy Resources, GSI.

"Coal to oil and coal to gas basics and future potentiality in India"

❖ Highlights:

- Generalised character of Coal / Lignite seams of some of the coal/lignite fields
- Underground In Situ Coal Gasification
- Underground Coal Gasification (UCG)
- CTL TECHNOLOGY

9. Ms Archchi Sarkar

(Research fellow, SPT, Pandit Deendayal Petroleum University)

Ms Archchi Sarkar is a Research fellow at School of petroleum technology, Pandit deendayal Petroleum University Under supervision of Dr. Uttam K Bhui. She has completed her B.Sc. In geology from Asutosh College, University of Canada with a first class. And Her M.Sc in applied geology from National Institute of technology Rourkela. She has experience in Project "geological and technological controls for underground coal gasification sponsored by CSIR Under supervision of Dr. Atul K Varma in Indian Institute of Technology Indian School of mines Dhanbad.

"Molecular insight of coal: a spectroscopic approach"

❖ Highlights:

- Correlation possible with FTIR and VRo data, to use as a parameter to indicate thermal maturity
- the application in Liquefaction and Gasification process, also on the utilization of lower rank coals

10. Dr. Ravinder Ariketi

(Asst. Manager, Geoscience, GSPC, Gandhinagar)

Dr. Ravinder Ariketi is working as Assistant Manager (Geoscience) at Gujarat State Petroleum Corporation Ltd (GSPC Ltd), Gandhinagar, Gujarat, India since 2008. He has completed his M.Sc in Geology with Gold medal from Kakatiya University, Warangal and M.Tech Petroleum Exploration from Delta Studies Institute (DSI), Andhra University, Andhra Pradesh, India and Ph.D degree from Pandit Deendayal Petroleum University (PDPU), Gandhinagar, Gujarat on Shale gas Exploration. He is having 12 years' Experience in Wellsite Geology, Seismic Interpretation, Petro physics, petroleum system analysis, Shale Gas reservoir Characterisation and Shale gas resource estimation of Cambay Basin. Since last 5 years he has been working on shale gas projects in Cambay basin at GSPC. He has published 14 papers in Springer, SPG, GEOHORIZONS, SPWLA, IAS and other journals.

"Maturity assessment of cambay shale formation for hydrocarbon prospect: a molecular structure approach with Optical spectroscopy study"

❖ Highlights:

- Organic Matter – Evaluation
- Source Rock Evaluation
- Thernal Alteration Index (TAI) and vitrinite reflectitance Ro
- Pyrolysis
- UV-Vis absorption spectroscopy
- Fluorescence spectroscopy

11. Dr. Joydeep Ghosh

(Associate Professor, Institute for Plasma Research, Gandhinagar)

Dr. Joydeep Ghosh is an experimental plasma physicist working as Associate Professor-II at the Institute for Plasma Research (IPR), Bhat Gandhinagar. At present, he is working in the Aditya Upgrade Tokamak Division at IPR. Dr. Ghosh obtained his Ph.D. degree from Jadavpur University on his work on SINP tokamak at Saha Institute of Nuclear Physics (SINP), Kolkata. He carried out his post-doctoral research at the Institute for Research in Electronics and Applied Physics at the University of Maryland, USA and Massachusetts Institute of Technology (MIT), Cambridge, USA for four years. Dr. Ghosh has worked on 4 tokamaks worldwide: (a) Large tokamak ALCATOR C-MOD in MIT (USA), (b) Midsize tokamak ADITYA in IPR (INDIA), (c) Midsize tokamak COMPASS in IPP (CZECH REPUBLIC), (d) Small tokamak SINP-TOKAMAK in SINP (INDIA). Dr. Ghosh has authored about 100 publications in International journals and more than 200 conference presentations in India and abroad.

"Coal in hydrogen plasma: Observation and implications"

❖ Highlights:

12. Dr. Harender Bisht

(Group Lead-Fluid Bed & Coking Process Development Refining R&D, Reliance Industries Ltd.)

Dr Harender Bisht was awarded Ph.D. in Polymer Science from IIP Dehradun in 2003. From 2003 to 2005 he completed post-doctoral studies at Wayne State University, Detroit, USA, on temperature and pH responsive smart polymers. He then taught nanotechnology at the Amity Institute of Nanotechnology, Noida, UP from 2006 to 2007 before completing his 2nd post-doc from 2008 to 2009 in Bourgogne University, Dijon, France on functionalization of iron oxide nanoparticles for MRI application. He joined Reliance Industries Limited in 2009 and is currently working as Group Lead – Fluid bed & Coking Process Development in R&D. His work is mainly focused on residue up – gradationprocesses and high value carbon materials.

"Role of advance carbon materials in the new paradigm of Energy & Environment"

❖ Highlights:

On – Campus Publicity and Registration desk

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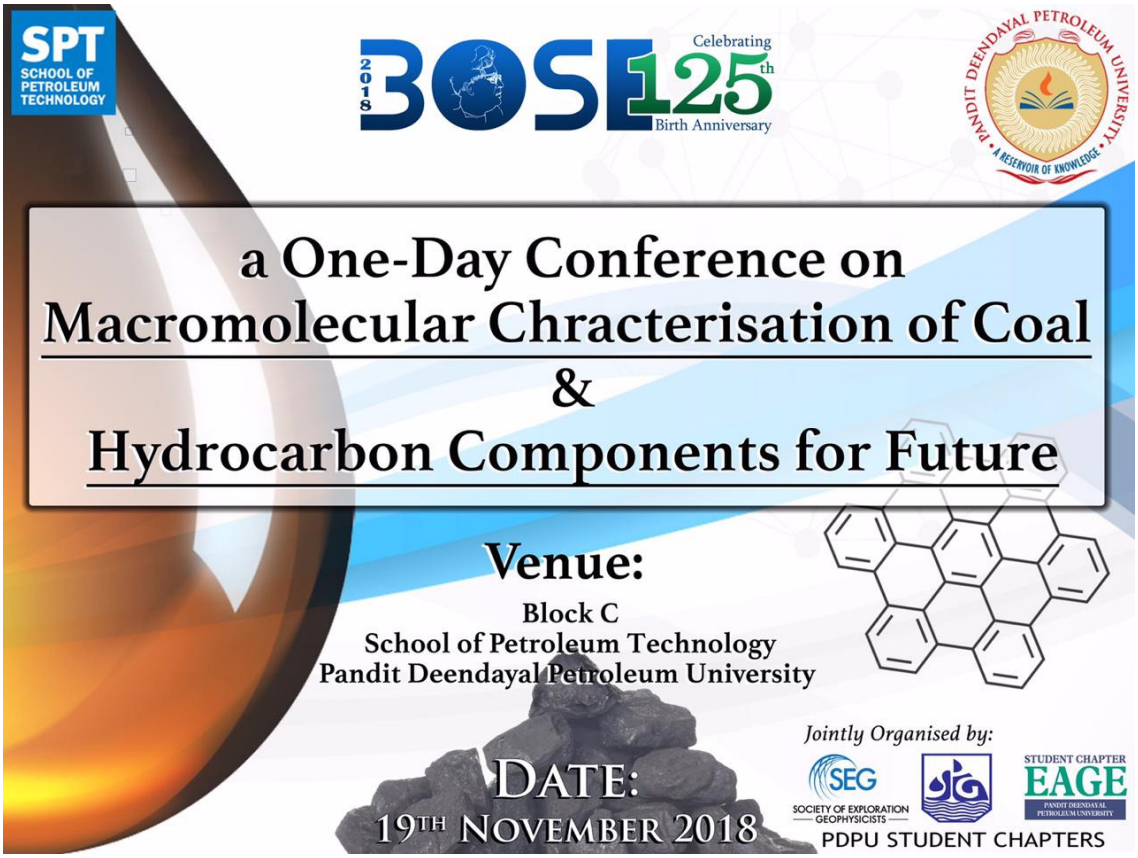


CONFERENCE BROCHURE:

The Organizing Committee:
Prof. C. Gopalakrishnan
(Director General - PDPU)
Dr. Anirbid Sircar
(Director, SPT)
Prof. Samir Kumar Pal
(Professor - SNBNCBS, Chairman BOSE-125 Outreach Program)
Convener:
Dr. Uttam K. Bhui
(Associate Professor, SPT)

Date:
19th November 2018

Venue:
Pandit Deendayal Petroleum University,
School of Petroleum Technology,
Block-C,
Raisan, Gandhinagar-382007
Gujarat, India

OBJECTIVE:

Coal, petroleum, organic chemicals, and biomass are the main raw materials from which precursors of carbon materials are obtained and presently the field of carbon materials has turned into a multi- and interdisciplinary science. The science and technology of carbon materials are in the process of continuous development and are constantly finding ways to improve the properties of the already existing materials even at the nanometric scale. Synthetic fuels are generally understood to include liquid and gaseous fuels as well as clean solid fuels produced by the conversion of coals, oil shale, tar sands and various other forms of biomass. Since all coals are carbon-rich solids, they can be used as precursors for new carbon based materials. The main aim of this conference is to provide awareness and knowledge to the budding students, reserchers, working professionals and scientists, the importance of macromolecular characterization of coal and petroleum for future use as source of energy and chemicals in a much cleaner way.

A One-Day Conference on
"Macromolecular Characterization of Coal & Hydrocarbon Components for Future"

Jointly Organized Programme On the occasion of

125TH BIRTH ANNIVERSARY OF PROF. SATYENDRA NATH BOSE

By:
School of Petroleum Technology, Pandit Deendayal Petroleum University, Raisan, Gandhinagar, Gujarat-382007
&
S.N. Bose National Centre for Basic Sciences Block-JD, Sector-III, Salt Lake, Kolkata-700106

SPEAKERS FOR THE DAY

Prof. S.K.Pal
(Senior Professor, SNBNCBC, Kolkata)
-Interdisciplinary Approach in Optical Spectroscopy for the Development of Indigenous Technology.

Mr. O. N. Gyani
(Head of Institute, Institute of Reservoir Studies, Ahmedabad, ONGC)
-Challenges in Mature Field Redevelopment.

Dr. Uttam K. Bhui
(Associate Professor, SPT, PDPU)
-Designing Saline Water for Enhanced Oil Recovery from Clay (Montmorillonite) Bearing Hydrocarbon Reservoirs: An Experimental Approach for Understanding Molecular Level Interaction Mechanism.

Mr. Sujit Mitra
(Chief Manager, Domain Expert of Heavy Oil, IRS, ONGC)
-Heavy Oil Characterization and Enhanced Oil Recovery: Challenges and Opportunities.

Dr. Joydeep Ghosh
(Associate Professor - F Institute for Plasma Research, Gandhinagar)
-Coal in Hydrogen Plasma: Observations and implications.

Ms. Archchi Sarkar
(Research Fellow, SPT, PDPU)
-Molecular insight of Coal: a Spectroscopic approach.

Ms. Rincy Anto
(Research Fellow, SPT, PDPU)
-Optical Characteristics of Petroleum Crudes-Surfactants-Brine Solutions: Molecular Level Insights for Designing Injection Fluids for Enhanced Oil Recovery (EOR).

Mr. Kunal Mehta
(General Manager (Chemistry.) ONGC, Ahmedabad Asset, Ahmedabad)
-Hydrocarbon Processing : Futuristic Issues & Challenges.

Dr. Harender Bisht
(Group Lead – Fluid Bed & Coking Process Development Refining R&D, Reliance Industries Ltd.,)
-Role of Advance Carbon Materials in the New Paradigm of Energy & Environment.

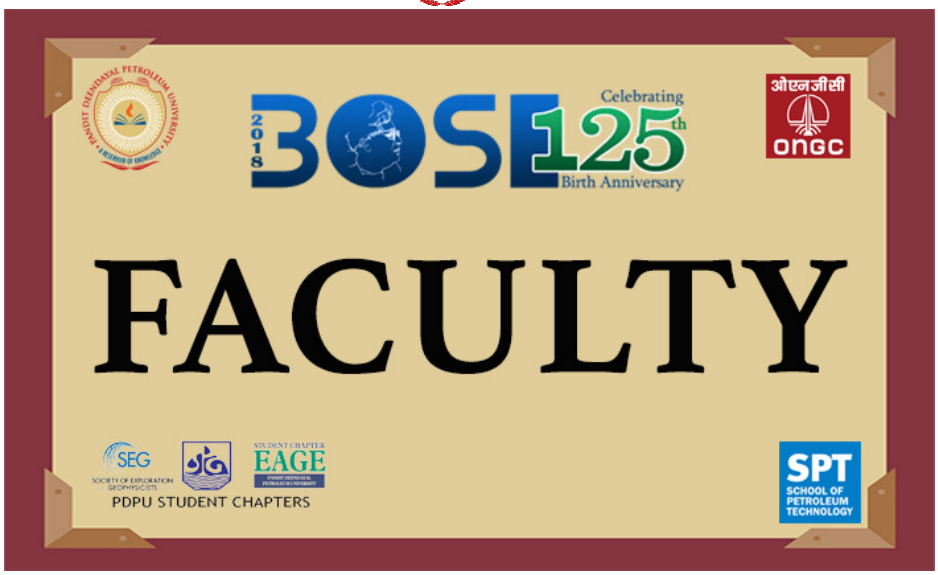
Dr. Sudip Bhattacharyya
(Director, Natural Energy Resources, Mission-IIB, GSI, Kolkata)
-Coal to Oil and Coal to Gas: Basics and Future potentiality in India.

Dr. V. A. Mendhe
(Sr. Principal Scientist CSIR-Central Institute of Mining and Fuel Research, Dhanbad)
-Coalbed Methane and Shale Gas Reservoir Characterization - Experiences of Gondwana and Tertiary Basins in India.

SPECIAL SESSION
Prof. Rajib Bandyopadhyay
(Professor & Head Department of Science, SOT, PDPU)
-S. N. Bose: An Underrated Genius

FOOD COUPON

Badges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Macromolecular Chracterisation of
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Hydrocarbon Components for Fu
Venue:
Block C
DATE:


&
Hydrocarbon Components f
Venue:
Block C
School of Petroleum Technology
ONGC
DATE:
19th NOVEMBER 2018


Supported By:
ONGC

SNAPS DURING THE CONFERENCES

Attendees:

Discipline	Attendees
Speakers	12
Students	54
Faculties	25
Researchers (Ph.D)	10
Industrial employee	02
Total	103