REJOYCE

Department of petrochemical Technology

Yearly newsletter
June 2015- May 2016

Vision:

To be a Department of Excellence in the field of Petrochemical Technology.

Mission:

To craft the students as potential technologists endowed with pragmatic skills.

To produce competent engineers to identify the emerging industrial, societal needs and address the same through innovative and eco-friendly solutions.

To fulfil the aspirations and expectations of the future generation by designing suitable academic, research and extension programmes.

Staff co-Ordinators

Mr. M.Rengasamy
Mr. M.N.Stalin

Our Editorial Team

Boobalan - IV year
Gowtham - IV year
Leela - IV year
Vedhagirishwaran. N - III year
Vinith - III year
Balamurugan. R - II year
Srimathy - II year

Events corner

TEQIP-II Sponsored
Workshop on Emerging Trends in Unit Process in Petrochemical Industries
Feb 12-13 2016

The objective of this proposal is to cover both old and the latest and emerging technologies in the field of Petroleum Exploration, Refining and Petrochemical. The chemical and petrochemical industries are facing many challenges due to globalization and environmental awareness. Nowadays energy labelling and eco-labelling of the industrial products have become mandatory forcing these industries to go for innovations and up-gradation of their technologies .This seminar focuses on the hurdles faced by these industries and is expected to throw some light on the various challenges faced by them which will enable these industries to move in the right direction and overcome the problems faced by them. Hence, this seminar will provide an excellent forum for exchange and dissemination of new ideas.


ANNA UNIVERSITY
BIT CAMPUS, TIRUCHIRAPPALLI-620 024.
BIT CAMPUS
13.02.2016


அண்ணா பல்கலைக்கழகம்
ANNA UNIVERSITY
BIT CAMPUS, TIRUCHIRAPPALLI-620 024.

TEQIP - II Sponsored
Technical Symposium Prospect 16
Feb 19-20 2016

"Prospect-16" a technical extravaganza with the theme of "Engaging Young Technocrats in Environment Friendly Practices

TEQIP - II Sponsored
Enhanced training Programme on
Equipments Design Software Training for Engineers

The objectives of the programme is to enhance young engineers in the field of chemical and petrochemical technology industries with track records of significant achievements in various engineering projects in various required design companies. A strong focus on process design is supported by this training programme of highly qualified and motivated engineers with understanding of the fundamental principles of Chemical, Mechanical, Structural and Civil engineering. This training programme gives innovative approach to problem solving and its commitment to realizing and exceeding its client expectation. This programme offer a high level personnel attention to the students to learn cost effective method of design and provide world class engineering in the process industries across the world

IndianOil Corporations Ltd Sponsored National Level Conference on " Emerging Trends in Chemical and Petrochemical Technology" NETCPT'16 March 10-11 2016

The National Conference on "Emerging Trends in Chemical And Petrochemical Technology" aims to bring together leading academic scientists, industrial persons, researchers and budding students to exchange and share their experiences and research results about all aspects of Chemical and Petrochemical Technology

About the sponsor
IOCL

Indian oil corporation limited is india's largest commercial enterprise and a leading Indian corporate in the Fortune Global 500 listing ranked at 119th position in the year 2015. with a workforce of over 34000, Indian oil has been meeting India's energy demands for over a half century. At indian oil, operations are strategically structured along business verticals-refineries, pipelines, marketing, R&D centre and business development, E&P, Petrochemicals and Natural Gas.

Chief guest

Mr. Nandha Kumar. R
General manager PC sales
IOCL,chennai

Global Top 5 Chemical Companies

1 BASF
2014 Chemical Sales: $78.7 billion

For the ninth year in a row, BASF is the largest chemical company in the world. This year also happens to be the company's 150th anniversary, so in April it threw itself a party. Attendees were treated to a musical composition, "Symphony No. 8: Water Dances," written by British composer Michael Nyman for the occasion and performed by London's Royal Philharmonic Orchestra. The work was inspired by 1,500 recordings made at BASF offices and plants. German Chancellor Angela Merkel was on hand, and in addition to praising the company, she did remind the audience about BASF's role in supplying chemical weapons during World War I and gas used in the Holocaust. BASF's strategic initiatives were modest during its birthday year. The company inked a deal last October to sell its textile chemicals business to Archroma, the former Clariant textile chemicals business now owned by SK Capital. In May, it agreed to sell its fine chemicals unit to Siegfried, continuing a trend by major chemical firms to beat a retreat out of custom synthesis.

2 Dow Chemical
2014 Chemical Sales: $58.2 billion

Andrew N. Liveris, CEO of Dow Chemical, spent much of the past year on the defensive. His company was beset by activist investor Daniel S. Loeb, whose hedge fund Third Point owns 1.9% of Dow. Loeb maintained that Dow's strategy of integrating petrochemicals with downstream specialty chemicals was counterproductive and that the company, the largest U.S. chemical firm, should be earning $2.5 billion more per year.

3 Sinopec
2014 Chemical Sales: $58.0 billion

Being the largest supplier of petrochemicals in the country that for a decade now has been the linchpin of global industrial growth has done wonders for Sinopec's chemical revenues. China's Sinopec is the world's third-largest chemical company. A decade ago it was merely the ninth largest with $16.7 billion in revenues. However, Sinopec's strong position hasn't guaranteed high profits. Owing to a lack of competitive raw materials, China is one of the most expensive places in the world to make petrochemicals, which shows in Sinopec's operating loss for 2014.

4 SABIC
2014 Chemical Sales: $43.3 billion

Mohamed H. Al-Mady, who led Saudi Basic Industries Corp. since 1998, stepped down from the firm in February to accept a post in Saudi Arabia's defense industry. Al-Mady presided over dynamic growth as SABIC used cheap Saudi ethane to fuel high profits and capital expansions. Knowing its feedstock advantage couldn't last forever, SABIC has rolled many of those profits into international acquisitions such as its 2007 purchase of General Electric Plastics. Recently, the company has been focusing on technology. It is considering an oil-to-chemicals complex for the kingdom.

5 ExxonMobil
2014 Chemical Sales: $38.2 billion

Unlike major oil companies such as Shell and BP, ExxonMobil never made major divestitures in petrochemicals. "We see the value of the chemical businesses," former ExxonMobil Chemical president Stephen D. Pryor told C&EN shortly after retiring on Jan. 1. "The prospective value of chemicals has only grown over time, and you will see chemicals an ever-larger part of the company." Indeed, ExxonMobil recently doubled petrochemical capacity at its refining and petrochemical complex in Singapore.

STAFF CORNER

PAPERS OF THE YEAR

Influence of various process parameters on the biosorptive foam separation performance of *o*-cresol onto *Bacillus cereus* and Cetyl Trimethyl Ammonium Bromide

NatarajanSaravani MuthukumarasamyArulmozhi

Abstract

Response surface methodology was used to optimize the removal of o-cresol from aqueous solution by Bacillus cereus and Cetyl Trimethyl Ammonium Bromide based hybrid technique biosorptive foam separation. The biosorptive foam separation was carried out in two stages namely biosorption and foam separation. A minimum run resolution *V* central composite design with five variables (initial feed cresol concentration, pH of the feed, biosorbent dosage, time and agitation speed) for biosorption and three variables (liquid pool height, surfactant concentration and airflow rate) for biosorptive foam separation were applied to optimize the process. The optimized conditions for maximum removal of cresol for biosorption were, Initial feed cresol concentration 467 mg/l, pH of the feed 6.44, biosorbent dosage 1.11 g, time 5.25 days and agitation speed of 195 rpm for biosorption, and that for biosorptive foam separation were liquid pool height 28.38 cm, surfactant concentration 0.29% and airflow rate 1.8 lpm. The results showed a good fit with the proposed statistical model for removal of o-cresol (R^2 = 0.9387) for biosorption and (R^2 = 0.9980) for biosorptive foam separation.

Equilibrium & Kinetic Study On Chromium (VI) Removal from Synthetic & Industrial Wastewater Using Marine Algae as a Novel Biosorbent

K.Aishwarya, M.V.Gokula Krishna, H.Yuva Kumar, K. Kumaraguru,[a], E.Gomathi[a]

Abstract

In the present study, the central composite design matrix (CCD) and response surface methodology (RSM) by design expert version 8.0.5 (Stat Ease, USA) have been applied to design the experiments to evaluate the interactive effects of five important variables viz sorbent size, sorbent dosage, temperature, contact time and agitation speed for full response surface estimation on biosorption of chromium (VI) ion using the dry algae of *s.wighiti.* Batch mode experiments were carried out to assess the biosorption equilibrium. Kinetic and isotherm studies were carried out, the thermodynamic parameters like standard Gibb's free energy (ΔG°), enthalpy (ΔH°) and entropy (ΔS°) were evaluated. The optimum conditions for maximum uptake of chromium (VI) ions from an aqueous solution of 100 mg/L were determined. Analysis of variance (ANOVA) showed a high coefficient of determination value (R^2 = 0.928) and satisfactory prediction second-order regression model was derived.

Performance Enhancement of Photovoltaic Systems Using Dynamic Rule Soft Switching Controller Based Maximum Power Point Tracker

AL. M ayilvahanan1 ∗, N. Stalin2, and S. Sutha3

The recent improvement in the usage of renewable energy resources consists of Solar energy which is the main contributor to the power generation in our country. This research work explains a practical approach to improving the efficiency of solar panels in various methods by the use of reflected mirrors, auto-dust cleaning, and automatic cooling mechanism along with Dynamic rule soft switching controller (DRSS). DRSS is a technique that works using interference Scheme of proper or wrong. By using mirror reflected method which continuously tracks sunlight throughout the day to get maximum solar energy. Regular cleaning of the dust, an automated cleaning operation has been designed, which functions the dirt on the Photovoltaic panel and also cleans the module automatically to increase the solar power generation. Incremental conductance method is used to track the Maximum power point (MPP) under the low irradiance condition or when sun radiations are less. The simulation work does with the Matlab environment by using proposed DRSS logic the simulation results show the effectiveness of the proposed technique and its ability to track the maximum power of the PV panel.

We whole heartedly wish Dr.K.Kumaraguru on obtaining his doctorate on" Biosorption of hexavalent chromium using marine algae from synthetic and industrial waste".

Dr.K.Kumaraguru obtained his B.Tech degree in chemical engineering from the university of Madras, M.Tech., degree in chemical process and design from SASTRA UNIVERSITY and Ph.D., from Anna University , Chennai. He has the vast experience of over 13 years in Teaching (Bharadhidasan and Anna university) and research . He is an active life member in IICHE and IPPTA. He has published more than 10 research papers in National and International Journals.

On the track of success.

Congratulating Dr.M.Kodeeswara ramanathan for acquiring his doctorate on "Contingency Planning to Continuous Supply in Constrained Power Resources in Particular Reference to Tamilnadu"

Currently working as assistant professor in Department of petrochemical technology in Anna university - Trichy, with teaching experience for 29 years, who completed his UG in chemical engineering and PG in REC , Trichy(currently NIT-Trichy). His expertise has been potrayed in pulishing 2 books and getting two granted projects from UGC in the years 1999-00, 2000-01. The occular samples of his involvement in his field is clear , as he has participated in 8 international conferences and 30 national conferences .

We congratulate Mr. Rengasamy.M for completing his Doctorate in " Transesterification of non- edible vegetable oils for the production of biodiesel using synthesized metal nanocatalysts"

Mr. Rengasamy is one of the most lovable persons of the department. He has been working as a teaching staff in Bharathidasan Institute of Technology Since 2005. he completed his B.Tech and M.Tech from A.C.College of Engineering. He has attended and presented research papers in many international and national conferences.

ACHIEVEMENTS

Our staff Dr.S.Venkatesan, Associate Professor, BIT, Anna University, Trichy has been invited as Chief Guest for the post lunch session at "MACNO 2016" JCT coimbutore and explained the importance of GATE examination and improving post graduate and research work. He stressed the need for GATE scores for entering in to IOCL, ONGC, BharathPetroleum and any central Government Organizations.

Mini bytes

Ancient Egyptians coated mummies using petroleum and sealed their mighty pyramids with pitch

The Babylonians, Assyrians and Persians used it to pave their streets, and hold their walls and buildings together

Publications on international journal by our staff

L.Manoj Kumar, N.Vedagiriswaran, **K. Kumaraguru** January-March 2016 Chemical and Elemental composition study of Musa Acuminata x Balbisiana Colla (AB Group) banana plant for the Production of bioethanol, Journal of Chemical and Pharmaceutical Sciences Volume 9 Issue 1

DB Kumar, **M Arulmozhi**, T Senthil Kumar Experimental Investigation on the Performance of SI Engine using Oxygenate Additives, Asian Journal of Research in Social Sciences and Humanities Volume. 6, Issue. 9, Pages. 246-253, Asian Research Consortium

N. Jaya, B. Karpanai Selvan & S. John Vennison, Synthesis of biodiesel from pongamia oil using heterogeneous ion-exchange resin catalyst, Ecotoxicology and Environmental Safety, 121 (2015) 3–9.IF:2.762, ISSN NO: 1520-5754.

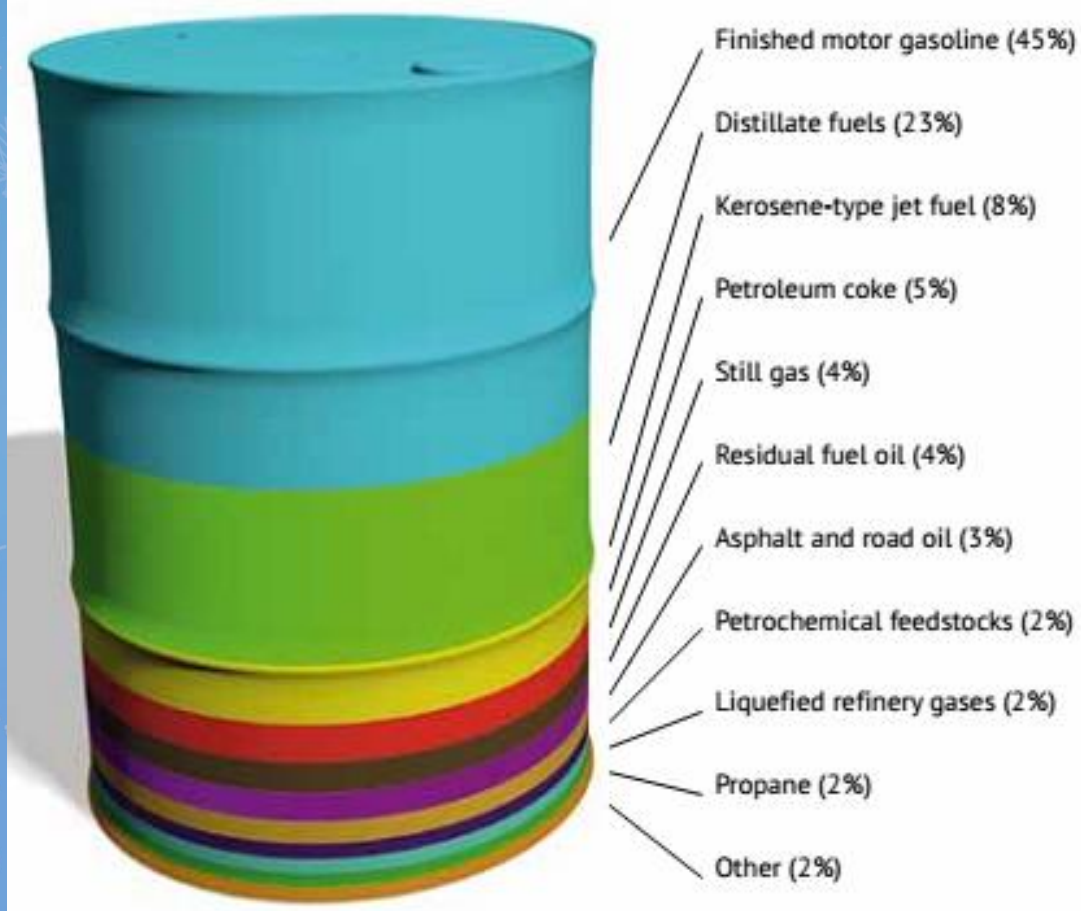
K.Kumaraguru, **M.Rengasamy**, E. Titus Praveen Kumar and D.Venkadesh, "Factors affecting printing quality of paper from bagasse pulb", International Journal of ChemTech Research, Vol.6, No.5, Aug-Sept. 2015, 2763-2767.

Saravanan KK, **Stalin N**, Sree Renga Raja T 2016,"Simulation of New Multi-Input Three Level DCDC Converter", Transylvanian Review. (Anna University recommended Journal: Annexure-I, Accepted for publication)

Saravanan KK, **Stalin N**, Sree Renga Raja T 2016, "Design of Single-Phase Seven Level GridConnected Inverter Using Solar System ", Asian Journal of Research in Social Sciences and Humanities.(Anna University recommended Journal: Updated List of Journals 2016,Accepted for publication in November 2016 Issue)

Facts sheet

What you get from a barrel of crude oil



Crude oil price during june 2015-may 2016

Saudi Aramco, the world's largest exporter of crude oil, not only owns both the worlds largest onshore and offshore oil fields, but is also the world's most valuable company

أرامكو السعودية
saudi aramco

Students corner

Heights and accolades mountained by students

Mr. Rama Chandran N:

Innovation excels...

✓Awarded the best paper for " A review on catalyst pyrolysis of post consumed thermoplastics mixture to form fuel."

✓1st south india student convention of chemical engineering on the assessment of state of the art in chemical engineering held at Sathish Dhawan space centre jointly organized by IIChE on February 22, 2016.

Mr.J.Vinu Pragash

✓ Form III , football player

✓Represented anna university, Tamilnadu held at Noida

✓Silver medalist in 100m Dash , trichy zone, held at JJCET , trichy on Nov,2015

Mr. R. Balaji

✓Bronze medalist in Hammerthrow , Trichy zone , held at JJCET , trichy on Nov,2015.

✓Teamed with S.Harsha Vardhan and was awarded the best paper on CIT-coimbatore.

Mr.S.Harsha Vardhan

✓First place , photography event conducted , Festember - NIT , trcihy

Mr. V.Jeya Vignesh

First in State level Para games with cash prize 5000 INR held at Ramnad , Karaiudi

5TH Rank in National Para Table tennis held at Indore, Madhya pradesh.

First in PRAYASS - 2016 held at IIM , Bangalore and awarded a cash prize of 4000 INR

Industry interaction/internship

STUDENTS PARTICIPATED	INDUSTRY
Megala M, Ashapriya N, Elamurugan D, King Ebenezer V, Sakthivel S, Shanker Ganesh S, Srikalaiselvi M, Subashini K A, Surendhar A D, Meganathan M, Saranya s	Chennai Petroleum corporations Ltd
Arun Pandian K	Cetex Petrochemicals Ltd
Raju M, Selvam E, Yasar Arafat S, Murugavel S	Hindustan Organic Chemicals Ltd. Kerala.
Dharmaprabu K	Manali Petrochemicals Ltd
Manivasan S, Ragupathiraja S, Rameshkumar A	Southern Petrochemical Industries Corporation Ltd
Logesh R, Pranesh S, Thirumurugan R, Venkatesan P, Vinu Pragash J, Innasi John Youts S,	The Fertilizers and Chemicals Travancore LTD
Praveen Preethi S, Thenmozhi P, Vinisha V	Travancore Titanium Products ltd

Students Participation in symposiums

Student's Name	Participated Symposiums
T.Balaji Muthumanickam	TECHFINIX 16, Technical Symposium, Paavai Engineering College, Namakkal, Technical Fest, Tamil Nadu.
R.Arun	TECHFINIX 16, Technical Symposium,
D.vinoth	TECHFINIX 16, Technical Symposium,
R.Sandeep kumar	TECHFINIX 16, Technical Symposium,
R.murugan	TECHFINIX 16, Technical Symposium,
B.Jamal mohammed ali	TECHFINIX 16, Technical Symposium,

Alumni arena

Name : Andrews Thanapragasam
Year passed : 2012
Designation : Assistant manager- manufacturing, Haldia petrochemicals ltd

Name : Benjamin R
Year passed : 2014
Designation : manager, infoplus technologies ltd

Name : Deepika M
Year passed : 2015
Designation : clerk, Indian bank

Name : Devasastha S
Year passed : 2012
Designation : assistant manager. Mangalore chemicals and fertilizers limited

Name : Ganeshkumar
Year passed : 2012
Designation : shift engineer , reliance industries jamnagar

Photos of Alumni Meet ASPECT - 16

Industrial Visit Photos of 3rd year students

Energy efficiency is a journey
Not a destination