By the Cheme. For the Cheme

SPARK

QUARTERLY MAGAZINE

DEPARTMENT OF CHEMICAL ENGINEERING

SRI SIVASUBRAMANIYA NADAR

COLLEGE OF ENGINEERING

Issue 40, JULY 2023

Quarterly Magazine of the Department of Chemical Engineering

EDITION 40

JULY 2023

Highlights in this Newsletter

- From HOD's Desk
- FACULTY ACTIVITIES
  - Awards & Recognition
  - Journal & Book Chapter Publications
  - Guest Lectures, Workshops & Webinars Organized
  - Events Attended
  - Viva-voce & DC Meetings
  - Start-ups
- ALUMNI ACTIVITIES
  - Career Development Workshop
- STUDENT ACTIVITIES
  - Placements & Internships
  - Co & Extra-Curricular Activities
  - Talent Showcase

From HOD's Desk

I am delighted to present the 40th edition of our Department Newsletter Spark. This edition focuses mostly on the accomplishments of faculty and students. I am pleased to announce that Dr. Nalinkanth V. Ghone's start-up company, NCAPS Formulations Private Limited, has been incubated at the SSN Incubation Foundation. Many of our students participated in internships in order to explore and expand their career options as well as to acquire new skills.

Our department's Institute Innovation Council organized Workshops on Start-ups for our undergraduate students because they create jobs, which leads to decreased unemployment rates, which in turn indicates a more evolved and well-functioning economy.

In terms of placement, all our eligible students are placed in various core and management firms. The average pay for recently graduated students is around Six Lakhs. I'd like to thank all of the students who contributed guest articles to our current issue. I also want to congratulate all of the staff and student editors for producing the quarterly publication Spark in such a professional manner.

Dr. K. Sathish Kumar
Professor & Head
Department of Chemical Engineering

FACULTY ACTIVITIES

Awards & Recognition

- **Dr. P. Senthil Kumar, Prof/Chem** ranked #3 in India among Best Scientists for 2023 in the field of Environmental Sciences as reported by Research.com. Also recognized as Environmental Sciences Leader Award for 2023.
- **Dr. P. Senthil Kumar, Prof/Chem** delivered a Plenary Lecture on "Research Aspects on Remediation Technologies for Synthetic Microfiber Pollutants from Water Environment" in the International Webinar (virtual) on Microplastic pollution: Adversities and Remediation strategies, organized by the Department of Life Sciences, RDW University, Odisha on 27-04-2023
- **Dr. P. Senthil Kumar, Prof/Chem** has been nominated as a Visiting Professor at Universidad de Tarapacá, Arica, Chile from 1st May 2023 on words.
- **Dr R Parthiban, Prof/Chem** attended the BoS meeting for B Tech Chemical Engineering course, Hindusthan College of Engineering and Technology, Coimbatore held on 26.05.23 by online
- **Dr. P. Senthil Kumar, Prof/Chem** acted as External Expert Committee Member for a Hackathon to evaluate the projects submitted by the candidates and to select the award winners under the theme of "Single Use Plastic (SUP) Reduced". This Hackathon event is organized by the Tamil Nadu Pollution Control Board (TNPCB), Chennai on 30-05-2023.
- **Dr. P. Senthil Kumar, Prof/Chem** delivered a Guest Lecture on "Removal of Synthetic Microfiber Pollutants from Water Environment" during the celebration of World Environment Day, organized by The Institution of Engineers (India), Salem Local Centre on 09-06-2023.

Paper & Book Chapter Publications

- Adsorption isotherm, kinetics and response surface methodology optimization of cadmium (Cd) removal from aqueous solution by chitosan biopolymers from cephalopod waste, M. Kavisri, Marykutty Abraham, S.Karthik Raja Namasivayam, J. Aravindkumar, D. Balaji, Ramamoorthy Sathishkumar, Sivaraj Sigamani, Ramachandran Srinivasan, Meivelu Moovendhan, Journal of Environmental Management,vol. 335, p. 117484, 2023, Clarivate, 8.91
- Review on Biopolymers and Composites – Evolving material as adsorbents in removal of environmental pollutants, Review on Biopolymers and Composites – Evolving material as adsorbents in removal of environmental pollutantsP. R. Yaashikaa, P. Senthil Kumar, S. Karishma, Environmental Research,Vol. 212, pp. 113114, 2022, Clarivate, 8.431
- Mycoremediation of lignocellulosic biorefinery sludge: A reinvigorating approach for organic contaminants remediation with simultaneous production of lignocellulolytic enzyme cocktail, Vinoth Kumar Vaidyanathan, Swethaa Venkataraman, P. Senthil Kumar, Devi Sri Rajendran, Kongkona Saikia, Abiram Karanam Rathankumar, Hubert Cabana, Sunita Varjani, Bioresource Technology,Vol. 351, pp. 127012, 2022, Clarivate, 11.889
- Enhanced methane production by granular activated carbon: A review, Leilei Xiao, Jian Liu, P. Senthil Kumar Meng Zhou, Jiafeng Yu, Eric Lichtfouse, Fuel,Vol. 320, pp. 123903, 2022, Clarivate, 8.035
- Halides and oxyhalides-based photocatalysts for abatement of organic water contaminants – An overview, R. Suresh Saravanan Rajendran, P. Senthil Kumar, Tuan K.A. Hoang, Matias Soto- Moscoso, Environmental Research,Vol. 212, pp. 113149, 2022, Clarivate, 8.431
- Advances in the application of immobilized enzyme for the remediation of hazardous pollutant: A review, P.R. Yaashikaa, M. Keerthana Devi, P. Senthil Kumar, Chemosphere,Vol. 299, pp. 134390, 2022, Clarivate, 8.943
- Nanoflower shaped NiO/CeO2 p-n junction material for the degradation of pollutant under visible light, Lalitha Gnanasekaran, A. A. Jalil, P. Senthil Kumar, Saravanan Rajendran, F. Gracia, Matias Soto-Moscoso, Mohamed A. Habila, Karunamoorthy Saravanakumar, Materials Letters,Vol. 317, pp. 132122, 2022, Clarivate, 3.574
- Recent advances in carbon nanomaterials-based electrochemical sensors for food azo dyes detection, Hassan Karimi-Maleh, Hadi Beitollahi, P. Senthil Kumar, Somayeh Tajik, Peyman Mohammadzadeh Jahani, Fatemeh Karimi, Ceren Karaman, Yasser Vasseghian, Mehdi Baghayeri, Jalal Rouhi, Pau-Loke Show,

Saravanan Rajendran, Li Fu, Najmeh Zare,, Food and Chemical Toxicology,Vol. 164, pp. 112961, 2022, Clarivate, 5.572

- Development of lab-on-chip biosensor for the detection of toxic heavy metals: A review, V. Karthik, B. Karuna, P. Senthil Kumar, A. Saravanan, R.V. Hemavathy, Chemosphere,Vol. 299, pp. 134427, 2022, Clarivate, 8.943
- Recent review on electron transport layers in perovskite solar cells, Shini Foo, M. Thambidurai, P. Senthil Kumar, R. Yuvakkumar, Yizhong Huang, Cuong Dang, International Journal of Energy Research,Vol. 46(15), pp. 21441-21451, 2022, Clarivate, 4.672
- A review on agro-based materials on the separation of environmental pollutants from water system, R. Sivaranjanee, P. Senthil Kumar, S. Mahalaxmi, Chemical Engineering Research & Design,Vol. 181, pp. 423-457, 2022, Clarivate, 4.119
- Production of hydrogen and value-added carbon materials by catalytic methane decomposition. A review, Cham Q. Pham, Tan Ji Siang, P. Senthil Kumar, Zainal Ahmad, Leilei Xiao, Mahadi B. Bahari, Anh Ngoc T. Cao, Natarajan Rajamohan, Amjad Saleh Qazaq, Amit Kumar, Pau Loke Show, Dai‐Viet N. Vo, Environmental Chemistry Letters,Vol. 20, pp. 2339-2359, 2022, Clarivate, 13.615
- Ultrasonic functionalized egg shell powder for the adsorption of cationic dye: Equilibrium and kinetic studies, Veluru Sridevi, B. Senthil Rathi, P. Senthil Kumar, A. Saravanan, R.V. Hemavathy, S. Karishma, S. Jeevanantham, Sri Himaja Pamu, Lam Sudha Rani, K.S.N.V.Prasad, Adsorption Science & Technology,Vol. 2022, Article ID 9177880, pp. 1-11, 2022, Clarivate, 4.373
- Insights into the role of nanotechnology on the performance of biofuel cells and the production of viable biofuels: A review, Humira Assad, Savas Kaya, P. Senthil Kumar, Dai-Viet N. Vo, Ajit Sharma, Ashish Kumar, Fuel,Vol. 323, pp. 124277, 2022, Clarivate, 8.035
- Prediction of bio-heat and mass transportation in radiative MHD Walter-B nanofluid using MANFIS model, S. Gopi Krishna, M. Shanmugapriya, P. Senthil Kumar, Mathematics and Computers in Simulation,Vol. 201, pp. 49-67, 2022, Clarivate, 3.601
- Microbial pullulan for food, biomedicine, cosmetic and water treatment: a review, Subbulakshmi Muthusamy, Swetha Juliet Anandharaj, P. Senthil Kumar, Yogesan Meganathan, Dai-Viet Nguyen Vo, Vinoth Kumar Vaidyanathan, Shanmugaprakash Muthusamy, Environmental Chemistry Letters,Vol. 20, pp. 3199-3234, 2022, Clarivate, 13.615
- Static and dynamic analysis of sulfamethoxazole using GO/ZnO modified glassy carbon electrode by differential pulse voltammetry and amperometry techniques, P. Senthil Kumar, B.S. Sreeja, K. Krishna Kumar, G. Padmalaya, Chemosphere,Vol. 302, pp. 134926, 2022, Clarivate, 8.943

- Carbon quantum dots embedded trimetallic oxide: Characterization and photocatalytic degradation of Ofloxacin, Gaurav Sharma*, Amit Kumar, P. Senthil Kumar, Abdullah Alodhay, Zeid A. ALOthman, Pooja Dhiman, Florian J. Stadler, Journal of Water Process Engineering, Vol. 48, pp. 102853, 2022, Clarivate, 7.34

- Green synthesis of curcumin-silver nanoparticle and its modified electrode assisted amperometric sensor for the determination of paracetamol, K. Krishna Kumar, M. Devendiran, P. Senthil Kumar, R. Suresh Babu, S. Sriman Narayanan, Chemosphere, Vol. 303, pp. 134994, 2022, Clarivate, 8.943

- Heat Transfer Effect of SiC-GN Hybrid Nanocomposite with Viscoplastic Fluid in Aircraft Jet Engine Hoses, S. Mullai Venthan, M.S. Nisha, P. Senthil Kumar, I. Jayakaran Amalraj, Sustainable Energy Technologies and Assessments,Vol. 52, pp. 102297, 2022, Clarivate, 7.632

- Investigation on the Performance of Nanostructure TiO2 bi-layer as Photoanode for Dye Sensitized Solar Cell Application, M.Shobanaa, P.Balraju, P. Senthil Kumar, N.Muthukumarasamy, R. Yuvakkumar, Dhayalan Velauthapillai, Sustainable Energy Technologies and Assessments,Vol. 52, pp. 102295, 2022, Clarivate, 7.632

- Recent developments on graphene and its derivatives based electrochemical sensors for determinations of food contaminants, R. Suresh, Saravanan Rajendran, P. Senthil Kumar, Tuan K.A. Hoang, Matias Soto-Moscoso, A.A. Jalil, Food and Chemical Toxicology, Vol. 165, pp. 113169, 2022, Clarivate, 5.572

- Fabrication and characterization of magnetic nanomaterials for the removal of toxic pollutants from water environment: A review, P. R. Yaashikaa, P. Senthil Kumar, Chemosphere,Vol. 303, pp. 135067, 2022, Clarivate, 8.943

- Sodium alginate/magnetic hydrogel microspheres from sugarcane bagasse for removal of sulfamethoxazole from sewage water: Batch and column Modeling, G. Prasannamedha, P. Senthil Kumar, S.Shivaani, M.Kokila, Environmental Pollution,Vol. 307, pp. 119523, 2022, Clarivate, 9.988

- Hydrogen generation from CO2 reforming of biomass-derived methanol on Ni/SiO2 catalyst, Pham Thi Thuy Phuong, Nguyen Nguyen Phuong, P. Senthil Kumar, Nguyen Phuc Hoang Duy, Quyet Van Le, Le Thi Bao Ngoc, A. A. Jalil, Saravanan Rajendran, Chin Kui Cheng, Thanh Huong Nguyen, Minh Tuan Nguyen Dinh, Dai Viet N. Vo, Topics in Catalysis,Vol. 66, pp. 41-52, 2023, Clarivate, 2.781

- A critical and recent developments on adsorption technique for removal of heavy metals from wastewater: A review, Saravanan Rajendran, A.K. Priya, P. Senthil Kumar, Tuan K.A. Hoang, Karthikeyan Sekar, Kar Yeen Chong, Kuan Shiong Khoo, Hui Suan Ng, Pau Loke Show, Chemosphere,Vol. 303, pp. 135146, 2022, Clarivate, 8.943

- Quantum chemical and experimental studies on the extraction of acid blue 80 and acid red 1 from their aquatic environment using tetrabutylammonium bromide based deep eutectic solvents, Beevi Fathima Mohamed Thamby, Vivek Mariappan Santhi, Anantharaj Ramalingam, Journal of Dispersion Science and Technology, https://doi.org/10.1080/01932691.2023.2195931, 2023, Web of Science, 2.057
- A review on biodiesel production by algal biomass: Outlook on lifecycle assessment and techno-economic analysis, P.R. Yaashikaa, M. Keerthana Devi, P. Senthil Kumar, E. Pandian, Fuel,Vol. 324, pp. 124774, 2022, Clarivate, 8.035
- Extraction techniques in food industry: Insights into process parameters and their optimization, Adithya Sridhar, Vijay Vaishampayan, P. Senthil Kumar, Muthamilselvi Ponnuchamy, Ashish Kapoor, Food and Chemical Toxicology,Vol. 166, pp. 113207, 2022, Clarivate, 5.572
- Recent trends and advancements in nanoporous membranes for water purification, A.K.Priya, Lalitha Gnanasekaran, P. Senthil Kumar, A.A.Jalil, Tuan K.A.Hoang, Saravanan Rajendran, MatiasSoto-Moscoso, Deepanraj Balakrishnan, Chemosphere,Vol. 303, pp. 135205, 2022, Clarivate, 8.943
- Metronidazole photocatalytic degradation by zinc oxide nanoparticles synthesized in watermelon peel extract; Advanced optimization, simulation and numerical models using machine learning applications, Adel Al-Gheethi, Narmatha Sundram, Rich Crane, Abdullah Alburihi, Radin Maya Saphira Radin Mohamed, Muhanna Mohammed Al-Shaibani, Efaq Ali Noman, P. Senthil Kumar, Nor Amani Filzah Mohd Kamil, Environmental Research,Vol. 212, pp. 113537, 2022, Clarivate, 8.431
- Effect of grinding time on bismuth oxyhalides optical and morphological properties influence on photocatalytic removal of organic dye, SP. Keerthana, K. Kowsalya, P. Senthil Kumar, R. Yuvakkumar, L. Kungumadevi, G. Ravi, Dhayalan Velauthapillai, Chemosphere,Vol. 304, pp. 135272, 2022, Clarivate, 8.943
- An efficient high powered sulfamethaxazole sensor based on p-n junction heterostructures using nanostructured ZnO thin film and graphene oxide sheets, P. Senthil Kumar, Balakrishnapillai Suseela Sreeja, Padmalaya Gurunathan, Kungumaraj Krishna Kumar, Industrial & Engineering Chemistry Research,Vol. 62(11), pp. 4521-4531, 2022, Clarivate, 4.326
- Recent advances in electrochemical sensor developments for detecting emerging pollutant in water environment, V. Karthik, P.Selvakumar, P. Senthil Kumar, V. Satheeskumar, M. Godwin Vijaysunder, S.Hariharan, K.Antony, Chemosphere,Vol. 304, pp. 135331, 2022, Clarivate, 8.943
- Effective adsorption of crystal violet onto aromatic polyimides: kinetics and isotherm studies, M. Loganathan, Arya S. Raj, A. Murugesan, P. Senthil Kumar, Chemosphere,Vol. 304, pp. 135332, 2022, Clarivate, 8.943

- Preparation and characterization of antimony nanoparticles for hydrogen evolution activities, V. Thirumal, R. Yuvakkumar, P. Senthil Kumar, B. Saravanakumar, G. Ravi, M. Shobana, Dhayalan Velauthapillai, Fuel,Vol. 325, pp. 124908, 2022, Clarivate, 8.035
- Nitrogen and nitrogen-sulfur doped graphene nanosheets for efficient hydrogen productions for HER studies, V. Thirumal, R. Yuvakkumar, P. Senthil Kumar, G. Ravi, M. Shobana, B. Saravanakumar, Dhayalan Velauthapillai, International Journal of Hydrogen Energy,Vol. 47(98), pp. 41461-41467, 2022, Clarivate, 7.139
- Ruthenium dioxide anchored on reduced graphene oxide nanocomposite for 1.2 V symmetric supercapacitor devices, V. Uma Shankar, P. Senthil Kumar, D. Govindarajan, P. Nethaji, G. Bharath Balji, Sustainable Energy Technologies and Assessments, Vol. 53, pp. 102444, 2022, Clarivate, 7.632
- Exploration of effective biorefinery approach to obtain the commercial value-added products from algae, S.Thanigaivel, A.K.Priya, P. Senthil Kumar, Khoo Kuan Shiong, Tuan K.A.Hoang, Saravanan Rajendran, MatiasSoto-Moscoso, Sustainable Energy Technologies and Assessments,Vol. 53, pp. 102450, 2022, Clarivate, 7.632
- Antimicrobial activity and cytotoxicity effect of the prepared bioactive Ag-NPs using Senna alata leaf extract on MCF-7 cancer cell line and brine shrimp, A. Saravanan, V. Parthasarathy, P. Senthil Kumar, Journal of Sol-Gel Science and Technology,Vol. 103, pp. 766-776, 2022, Clarivate, 2.606
- MANFIS approach for predicting heat and mass transport of bio-magnetic ternary hybrid nanofluid using Cu/Al2O3/MWCNT nanoadditives S. Gopi Krishna, M.Shanmugapriya, R. Sundareswaran, P. Senthil Kumar, Biomass Conversion and Biorefinery,https://doi.org/10.1007/s13399-022-02989-x, 2022, Clarivate, 4.05
- Understanding the impact of different pretreatment methods on the conversion of Casuarina equisetifolia biomass to 5-hydroxymethylfurfural and their energy cost assessment Devi Sri Rajendran, Swethaa Venkataraman, P. Senthil Kumar, Trishita Bhattacharya, Krishnakumar Ramachandran, Vinoth Kumar Vaidyanathan, Industrial Crops & Products,Vol.186, pp. 115275, 2022, Clarivate, 6.449

Guest lectures, Workshops and Webinars Organized

- **Dr. B. Ambedkar, ASP/Chem** organized a "Webinar on STARTUP 101" on 24th April 2023 (Monday): 10.30 am – 11.30 am as a part of SSN IIC 5.0 activity.
- **Dr. B. Ambedkar, ASP/Chem** organized a "Seminar on Facilitating Start-up Launch and Growth" on 16th June 2023 (Friday): 09.30 am – 10.45 as a part of SSN IIC 5.0 activity.

Events Attended

- **Dr. Pachimatla Rajesh, AP/Chem** presented a Paper in Schemcon 2022, 18th Annual Session on Chemical Engineering Students Congress, held at NIT Warangal, Sep 23 to 24, 2022.
- **Dr. P. Senthil Kumar, Prof/Chem** has attended "Live-Virtual Event: From innovative ideas to Scholarly Books in Science & Technology", organized by Taylor & Francis Publisher on 17-10-2022.
- **Dr. V. Jaikumar, ASP/Chem**, attended Virtual Session on Dicronite - The New Age Lubrication for Manufacturing in India, 28 Oct 2022, 10:00 – 11:00. Key Speakers are, Mr Douglas Victor Croft, President, Dicronite USA; Mr Trevor Dillman, Product Manager, Dicronite USA: Mr S M Kanakaraj, Dicronite India representative, India.
- **Dr. B. Ambedkar ASP/Chem** had undergone Innovation Ambassador (IA) Training "Foundation Level" conducted in online mode by MoE's Innovation Cell & AICTE.
- **Dr. B. Ambedkar, ASP/Chem** attended a webinar on role of an Innovation Ambassador (IA) within an Institution Innovation Cell (IIC) (Engagement of Existing IA's – SRO) conducted by Ministry of Education's Innovation Cell, AICTE on April 10, 2023 2:30 PM.
- **Dr.J.Dhanalakshmi, ASP/Chem** presented a paper along with Muthumari P, J. S Senthil Kumaar, D. Jansirani, K.Sakthyi, M. Madhubala, S. Subathira, S. Suba, G. Muneeswari entitled Synthesis of starch-based bioplastic using banana peels in the International Conference On Biotechnological Solutions For Sustainable Development (ICBSSD-2023) organized by Department of Biotechnology, PSR Engineering college, Sivakasi, during March 16-17, 2023
- **Dr.J.Dhanalakshmi, ASP/Chem** presented a paper along with Muthumari P, Persis J, Reshma A, Sharon Jose R B entitled Thermophysical properties of virgin and carbon loaded nonaqueous amine with ionic liquids in CO2 capture process in the International Conference On Biotechnological Solutions For Sustainable Development (ICBSSD-2023) organized by Department of Biotechnology, PSR Engineering college, Sivakasi, during March 16-17, 2023
- **Dr.J.Dhanalakshmi, ASP/Chem** presented a paper along with Muthumari P, Kanchana devi K, Gali Poojitha, Malarkodi L entitled Experimental investigation of carbon capture using solvent based absorption in the International Conference On Biotechnological Solutions For Sustainable Development (ICBSSD-2023) organized

by Department of Biotechnology, PSR Engineering college, Sivakasi, during March 16-17, 2023

- **Dr. D. Balaji, ASP/Chem,** Associate Professor, attended One-week Virtual Faculty Development Program on "Sustainability in Environmental Remediation" from 05th to 09th June, 2023, organized by Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore – 641 032.

Viva-voce & DC meetings

- **Dr. R Parthiban Prof/Chem** forwarded the final thesis to Centre for Research, Anna University for his full time research scholar Ms Abhinaya M on 10.04.2023
- **Dr. R.Anantharaj ASP/Chem** conducted the confirmation DC Meeting for his Full-time research scholar, Ms. J.S. Deepthi on 19.05.2023.
- **Dr. P. Senthil Kumar, Prof/Chem** visited the research labs and discussed with research scholars and faculty at Government College of Technology, Coimbatore on 15&16th May 2023.
- **Dr. J. Dhanalakshmi, ASP/Chem** conducted the confirmation DC Meeting for her full-time research scholar, Mrs. Kalpana G on 16.05.2023.
- **Dr. J. Dhanalakshmi, ASP/Chem** conducted the confirmation DC Meeting for her part-time research scholar, Mrs. Swathi Chenna on 13.06.2023.
- **Dr. Nalinkanth V. Ghone, ASP/Chem** conducted the confirmation DC Meeting for his part-time research scholar, Mr. S. Naga Vignesh on 27.06.2023.

Start-ups

NCAPS Formulations Private Limited, founded by Dr. Rajalaxmi N. Ghone and **Dr. Nalinkanth V. Ghone** is in the business of developing controlled release formulations of bioactive compounds for human and animal health. The startup is incubated at SSN Incubation Foundation.

An active pharmaceutical ingredient or drug is a substance intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease. Release of drugs according to a predictable amount and at right place is essential for drug efficacy, otherwise it may lead to undesirable toxic effect. Using conventional drug delivery systems leads to non-uniform delivery thereby resulting in fluctuating drug concentration and undesired bioavailability. To address this problem the start-up is engaged in research and development of nanomaterial based controlled drug release formulations for safe, efficient, and reliable drug therapy.

The start-up is proposing to apply the development of nanomaterials for encapsulation of active drug moiety and deliver it to desired place using drug targeting moiety on its outer surface using conventional physical and chemical principles. More specifically naturally available nanomaterials will be used for the purpose. The novel formulations will deliver the drug in a sustained manner over a long period of time at the desired place. The startup will also apply conventional chemical engineering methods to manufacture the formulations for meeting the growing demand of controlled release formulations.

Founders:

Dr. Rajalaxmi N. Ghone, is a healthcare professional who is experienced in diagnosing and treating dental conditions. She has special interests in the formulation of products for oral, skin and hair care. She has completed her undergraduate in Bachelor of Dental Surgeon from D. Y. Patil Dental College and Hospital, Navi Mumbai, and did her Post Graduate Program in Esthetics from State University of New York, Buffalo, USA.

Dr. Nalinkanth V. Ghone, Chemical Engineering faculty at SSNCE is having research interests in the formulation of polymer/nano-biomaterials for controlled delivery of bioactive compounds. His rich professional experience includes combination of industry, academia, and research. He has completed his B.Tech in Chemical Engineering from Coimbatore Institute of Technology and did his PhD from Louisiana Tech University, Ruston, USA.

ALUMNI ACTIVITIES

Career Development Workshop

Preparation Strategies and Career Prospects in Dow Chemical

Alumni association of Chemical Engineering department organized a webinar titled "Preparation Strategies and Career Prospects in Dow Chemical on 29.04.2023 to familiarize the final year students about the recruitment process followed by Dow chemical. This session was handled by Ms. A. Anusha who completed B.Tech. Chemical Engineering in the year 2020 and got placed in Dow Chemical. Anusha gave insights about Dow Chemical and her experience with the recruitment process. She shared the main concepts and knowledge expected from a Chemical Engineer and stressed students to refresh the basic concept on core Chemical Engineering subjects such as Fluid Mechanics, Heat Transfer and Mass Transfer

STUDENT ACTIVITIES

Placements & Internships

PLACEMENT DETAILS - BATCH - 2019 - 23				
Sl.No.	**Name**	**Company**	**Category**	**Salary per Annum (Rs)**
1.	Dharun Aditya	Petrokens	Core	2,50,000
2.	Sathiya Narayanan V K	Sanmar	Core	4,45,000
3.	Thirthaa	Technip Energies	Core	6,10,000
4.	Raghul J	Sanmar	Core	4,45,000

INTERNSHIP - BATCH - 2019 – 2023				
Sl.No	**Name**	**Company Name**	**From Date**	**To Date**
1.	Ahamed Basith M M	CIFC,Thoraipakkam	06-01-2023	30-06-2023
2.	Balaji M	Wood PLC,Tharamani	27-03-2023	30-06-2023
3.	Gowthamraj A	Wood PLC,Tharamani	27-03-2023	30-06-2023
4.	Nivetha M	Severn Glocon Valves Pvt.Ltd, Irugantukottai	23-01-2023	22-06-2023
5.	Reshma A	Wood PLC,Tharamani	27-03-2023	30-06-2023
6.	Shruthi P	Amazon(India) Private Limited	23-01-2023	16-06-2023
7.	Thirthaa	Amazon(India) Private Limited	23-01-2023	16-06-2023
8.	Vishal Prakash	Severn Glocon Valves Pvt.Ltd, Irugantukottai	23-01-2023	22-06-2023
9.	Akhash P S M	Severn Glocon Valves Pvt.Ltd, Irugantukottai	23-01-2023	22-06-2023
10.	Ajin Kumar R	Severn Glocon Valves Pvt.Ltd, Irugantukottai	23-01-2023	22-06-2023
11.	Kishore S	Wood PLC,Tharamani	27-03-2023	30-06-2023
12.	Joshua T	Wood PLC,Tharamani	27-03-2023	30-06-2023
13.	Sriram Gokula Krishnan R	Wood PLC,Tharamani	27-03-2023	30-06-2023
14.	Durga Gunasekar	Wood PLC,Tharamani	27-03-2023	30-06-2023

Co & Extra Curricular Activities

- **Dr. B. Ambedkar, ASP/Chem,** UG Student Geetha S presented a paper along with Mangaleswari Santhosh kumar, Ambedkar Balraj, Srinivas Vetriselvan, Geetha Subramani, and Ambiga Selvaraj, Stability and Physiochemical Analysis of Thermally Heated Aqueous Monoethanolamine", 3rd International Conference on Recent Trends In Analytical Chemistry (ICORTAC-2023), June 26 – 28, 2023 at University of Madras, Chennai, Tamilnadu, India.

Talent Showcase

SSN EDC-LAKSHYA CLUB

I am writing an article about the club events in which I was in the Organizing Committee (OC). I am a member of our college entrepreneurship cell EDC - Lakshya club where they have flagship events, workshops and many other events related to entrepreneurship lined up throughout the year. As a part of organizing those events, I have contributed as a OC member for the following events of EDC. 'Marketize 2.0' is an event organized by Lakshya on 25th November where it involves student's participation and the event has a total of three rounds with treasure hunt being one of it. I have contributed by working on the event structure and sold the highest number of tickets for it. Next up 'Masterminds' is also an event involving simple theme of 'guess the logo' where students will find the logo/brand name within the given time limit. The event was completely organized by myself and one more person from the other department. Following that, Lakshya conducted their three flag ship events one after the other. One was 'Mela' which was held on 24th February, is

an event in which students will put up stalls of their own interest on the day of the event and sell their products to the people. I also served as a OC for the same. During Instincts, Lakshya organized their next flagship event 'Udaan' held on 9th March where a group of students will learn about entrepreneurship in three rounds of fun. I served as OC by designing, working on structure and management of the event. Another flagship event was 'SYCoN' which was held on 19th April. It's an event in which entrepreneurs from

various sectors and fields would come on the day of the event and share their life experiences and talk about entrepreneurship. I did my part as OC by helping out in poster designing, sponsorship, finding speakers and being an emcee on the day of the event. It was a great opportunity working for EDC- Lakshya as I learned and explored new things not only related to entrepreneurship but also in terms of other stuffs. If you are a person who is likely to do business or love entrepreneurship or curious about what this club is, then definitely our college EDC - Lakshya club would be a great platform for you to explore and learn. Hope I gave you all a glimpse of what Lakshya club is all about. Thank you so much for our department for giving me the opportunity to write an article about this.

- Report by Ms. Vaibavasri, II Year B.Tech., -Chemical Engineering

IITMRP Workshop

A BUILD CLUB INITIATIVE

Activities

The workshop is held for 2 consecutive days on April 3&4 2023. The club already has a handful of projects to work on. There are nearly eleven more colleges taking part in this event. They have allotted different projects for different allotted teams. Our batch has got projects related to Gesture control devices and fun with image processing. They have also provided detailed descriptions and an instruction manual. They have also provided all the necessary gadgets and tools to work on. Gesture control is about controlling the movement of the developed maze using hand movements and fun with image processing including processing the image shown on the camera and editing its usage. Soon after the completion of the project, it has to be uploaded to their respective discord server.

TAKE AWAY

Overall it is a hands-down experience. It has given us a well ground exposure and the techniques and difficulties faced while building a product. Since it is a budding club, it is way more useful in upcoming years for innovation and a product-based startup foundation.

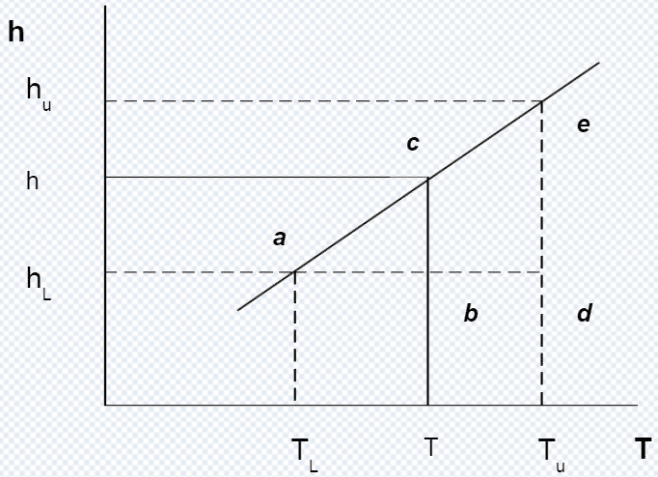
- Report by Mr. Sanjeev J, II Year B.Tech., -Chemical Engineering

APPLICATION OF INTERPOLATION IN CHEMICAL ENGINEERING

For many years, computer-based mathematical models have been used to analyse thermodynamic systems, and it is no doubt an effective way to save time and money for doing parametric studies and/or what-if scenarios. An innovative interpolation technique that has been developed to properly obtain thermodynamic properties near the saturated liquid ana saturated vapor lines.

Interpolation is a method of deriving a simple function from the given discrete data set such that the function passes through the provided data points. This helps to determine the data points in between the given data ones. It is mostly used to predict the unknown values for any geographical related data points such as noise level, rainfall, elevation, and so on.

Linear interpolation is a way to fill in the "holes" in tables. The tables of properties do not have data for every temperature and pressure and so it is necessary to interpolate if the state does not coincide with a tabulated point. It is assumed that, for the short range between points the variation is linear giving rise to linear interpolation.



In the above diagram the points a and e represent points that are in the table and point c is the position at which the properties are required. If the variation is linear, that is, if ae is assumed to be a straight line, then using the principle of similar triangles:

$$\frac{ba}{da} = \frac{cb}{ed}$$

$$\frac{(T - TL)}{(Tu - TL)} = \frac{(h - hL)}{(hu - hL)}$$

$$h = hL + (hu - hL)\frac{(T - TL)}{(Tu - TL)}$$

The above diagram utilises h and T but the axes could be labelled by any two properties.

INTERPOLATION FORMULA:

$$y = (y_2 - y_1)\left(\frac{x - x_1}{x_2 - x_1}\right) + y_1$$

Here x1 and y, are the first independent value and its corresponding dependent value, respectively. x2 and y2 are the second independent and dependent values. x is the input value, and y is the output value. As mentioned earlier, property tables are functions of pressure (P) and enthalpy (H), so for a density table, pressure and enthalpy are both independent variables, and density (p) is the dependent variable. Now for example, when it states that "the density is determined by interpolating between the HI, and Hhi properties using the input enthalpy", it means that the density at a particular pressure P is calculated by using Equation (1) with the following values

$$\rho = (\rho_{Hhi} - \rho_{Hlo})\left(\frac{H - H_{lo}}{H_{hi} - H_{lo}}\right) + \rho_{Hlo}$$

where PHhi is the density at the higher enthalpy, pHlo is the density at the lower enthalpy, Hhi is the higher enthalpy, HI, is the lower enthalpy, H is the input enthalpy, and p is the output density.

For example, a temperature of 38 °C is not in the table. You could of course just ignore the difference between 38 °C and 40 °C, and still take the saturated pressure to be 7.384 kPa. But it is too inaccurate. To get an accurate value, you must use linear interpolation.

Let's introduce a few symbols. Let g be your given value, 38 °C in this example. Let g1 and g2 be the two closest approximations to g in the table. A look at Table B.1.1 shows that the two closest values you can find in the table are 35 C and 40 C, so in our example g1=35° C and g2=40 °C. (The desired value is in between those two, hence the ``in'' in ``interpolation.'')

Also, let d be our desired value, in our example the saturated pressure. Let d1 and d2 be the approximate desired values corresponding to g1 and g2.

The formula for linear interpolation is:

$$\boxed{d = d_1 + \frac{g - g_1}{g_2 - g_1}(d_2 - d_1)}$$

In our example, Table gives the saturated pressure at g1=35 °C to be d1=5.628 kPa and the saturated pressure at g2=40 °C to be d2=7.384 kPa. Both d1 and d2 are approximations to our desired pressure, but neither is accurate enough.

So, in our example, the desired saturated pressure d at 38 °C is:

$$d = 5.628\ \text{kPa} + \frac{38°\text{C} - 35°\text{C}}{40°\text{C} - 35°\text{C}}(7.384 - 5.628)\ \text{kPa} = 6.682\ \text{kPa}$$

- Article by Ms. L.M. Rajashri, II Year B.Tech., -Chemical Engineering

Maths Contest Mathopilia in Sairam College

This is Karthikeyan.S from second year, Department of Chemical Engineering ,willing to share my experience of attending the One Day Intercollegiate Mathematics Contest "Mathopilia" event held in Sri Sairam Engineering College. I came across this event via my Mathematics sir who encouraged me to participate in the event based on my performance in The National Level Math Symposium "exlog" conducted in our college. So there were 4 events and all requisite profound knowledge of Basic Mathematics. The four events were Paper Presentation, Model Exhibit, Quiz and Olympiad. I participated in the Quiz and Olympiad. For the Quiz, there held an intra college prelims for the Sairam college students and out of 300, best 12 teams were filtered. So wholly there were 70 teams in the day of event from many colleges with 2 members per team. I was deficit of a team member so I contested as a single participant. Quiz contained 2 rounds. In prelims, 20 questions were asked, which was a bit stretching. Out of 70, only 5 teams were hand-picked from the quiz. I outshined the other teams in prelims and successfully advanced to the finals. Out of the 5 teams, 3 teams were SSNites. Final round demanded 2 members for a team, so my classmate Rajashri.L.M. joined me in the finals The finals consisted of 5 rounds; of Find the mathematician, Find the theorem, Connexions, True or false, Find odd one out. We accomplished perfect synergy and collegiality, crowned the finals by securing 55 points and the 1st prize.

After the event, we were given refreshments and lunch, which was followed by the commencement of the next event, the Olympiad. It was a solo event that embraced 10 questions, where all participants were asked to solve the problems step wise as the steps had points. The questions were pretty arduous and I gave my all to solve those. We were

monitored and the volunteers aided us whenever in need of additional sheets and stuff. I cracked the third prize in the Olympiad, which was very overwhelming.

At the end of the One Day Intercollegiate Mathematics Contest, there held an award ceremony in t

he Hall, where all participants from our college had acquired their certificates and cash prizes. It was an incredible experience that not only contested my mathematical skills but also instilled in me a sense of accomplishment and personal growth. I would like to express my appreciation to my Mathematics teacher Dr.R.Sundareswaran for his guidance and support. The contest enhanced my critical thinking skills, strengthened my mathematical foundation, and fostered a spirit of healthy competition. Participating in this contest has further motivated me to continue exploring the field of mathematics and pursue further challenges in the subject.

- Report by Mr. S.Karthikeyan, II Year B.Tech., -Chemical Engineering

IIC Start-Up Seminar

Department of Chemical Engineering and Institutions' Innovation Council jointly organized a seminar for all students and faculties on "Facilitating Start-Up Launch and Growth on 16th June 2023 from 9.30 am to 10.15 am in the Department of Chemical Engineering. The event started following the arrival of the resource person Mr. Boniface Pascalraj and was organized by Rajashri.L.M. and Kallki Selvan of 2nd year Chemical Engineering Department. The objectives of the program were to inspire and motivate budding entrepreneurs to pursue their business ideas and to preserve through the challenges of starting and growing a business. Furthermore, to encourage innovation and creativity among entrepreneurs by providing information on emerging trends, technologies, and opportunities in the market and to provide information on how to start a business, how to secure funding, or how to scale a business.

The event's Chairperson Dr. K. Sathish Kumar (Professor and HOD of the Department) initiated the event by directing the students on how salient it is to be innovative, to bring about new ideas and to have their own startups. Followed by him, Dr. B. Ambedkar, Innovation Ambassador and Associate Professor addressed the self-same and embraced the guest Mr. Boniface Pascalraj, Senior Manager, SSN Incubation Foundation. He provided valuable insights and perspectives on the entrepreneurial journey and conveyed his thoughts and perspective on how to start, fund, and grow a business, as well as the challenges and opportunities of the startup ecosystem. He gave an insightful thought on how to generate ideas and convert them into a brand as right through his entrepreneurial journey, he has been contributing to the startup ecosystem by being a resource person for startup programs at various Government and Private Institutions.

He emphasized the steps involved in developing one's idea and brand in the market and further to expose the participants with the skills, knowledge and resources that they need to succeed in the startup ecosystem. Besides he also elucidated students to come up with innovative ideas and approach SSN Incubation Foundation for further help. Furthest he illuminated the queries of students in regard to the startups and innovation. The seminar proved to be an impactful event for all participants as it provided a platform for knowledge sharing, networking, and fostering collaborations among entrepreneurs, investors and industry experts.

Attendees felt more inspired and motivated to pursue their business ideas if they had one, despite the challenges, risks involved and left the event equipped with valuable insights, actionable strategies, and connections to support their startup growth journey. It played a significant role in promoting the startup ecosystem and empowering aspiring entrepreneurs to thrive in the competitive business landscape.

- Report by Ms. L.M. Rajashri, II Year B.Tech., -Chemical Engineering

அப்பா

- சதீஷ்குமார்

தோள்களில் அமர வைத்து
தேர் போல கூட்டி சென்றது நீ

துக்கமான நேரத்தில்
தோள்களை தட்டி கொடுத்து
தைரியம் கொடுத்தது நீ.

சோர்வுற்ற நேரத்தில்
கால்களை பிடித்து
தூங்க வைத்தது நீ

துவண்டு போன நேரத்தில்
என் தூண்டுகோலும் நீ.

திரியாய் இருந்த என்னை
ஒளியாய் மாற்றிய
தீச்சுடர் நீ ◘

அழிப்பானும் நானும்

- சதீஷ்குமார்

என் தவறை சரி செய்ய நீ இருக்கிறாய்....
உன் உடலை துன்புறுத்தி நான் திரிகிறேன்
உனை அழித்து – என்
எழுத்தை சரியாக்கினாய்...
தவறில்லா தொடரமைக்க உடனிருந்தாய்
தேவைக்காக பயன்படுத்தும் உன்னை
தேய்த்து தேய்த்து
வீணடித்ததை என்னி
என் மனம் வாடுகிறது...
உனை வறுத்தி
என் எழுத்தை காத்ததற்கு
பரிகாரமாய்
என் தவறை குறைத்து கொண்டு
உன் உயிரைக் காப்பேன்..
அழிப்பானே !
நீ அஃறிணையாக இருக்கலாம்
ஆனால்,
எனை உயர்த்த
போராடிய நீ
என்றென்றும் என் வாழ்வில் உயர்தினையே !!!

EDITORIAL TEAM

FACULTY EDITORS

Dr. K. Sathish Kumar

Dr. D. Balaji

STUDENT EDITORS

S. Sanjnaa

L. M. Rajashri

P. Smruthi

S. Abinaya

Fathema Fahmida Sulaiman

M. Pranavavel

II Year B.Tech., - Chemical Engineering