

# THE AGENDA

Newsletter.....



FROM THE DEPARTMENTS OF SCIENCE AND HUMANITIES

(APPLIED CHEMISTRY, APPLIED MATHEMATICS, APPLIED PHYSICS & HUMANITIES AND SOCIAL SCIENCES)

SRI VENKATESWARA COLLEGE OF ENGINEERING  
SRIPERUMBUDUR - 602117 TAMILNADU, INDIA

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VOLUME 02; ISSUE 7 JUNE 2023 MONTHLY UPDATED

## RESEARCH ARTICLE PUBLISHED

Published a review article authored by Dr. Ananda Babu S and Dr. Anandhavelu S along with our Biotechnology students Ashwini Pushparaj, Gaayathri Mahesh Kumar, Nithila Sundarapandian, and Sulakshuna Balaji, as well as a collaboration with Muthuchamy Nallal and Kang Hyun Park, Department of Chemistry, Pusan National University, Busan 46241, Republic of Korea.

- Title: Toxicity of Polymeric Nanodrugs as Drug Carriers
- Authors: Ananda Babu Sairam, Anandhavelu Sanmugam, Ashwini Pushparaj, Gaayathri Mahesh Kumar, Nithila Sundarapandian, Sulakshuna Balaji, Muthuchamy Nallal, and Kang Hyun Park
- Journal: ACS Chemical Health & Safety Article (Q1)
- DOI: 10.1021/acs.chas.3c00008

tsu00 | ACSJCA | JCA11.2.5208/W Library-x64 | manuscript.3f (R5.2.i3-5013 | 2.1) 2022/08/03 13:05:00 | PROD-WS-121 | nq\_457342 | 6/21/2023 19:23:31 | 15 | JCA-DEFAULT



pubs.acs.org/acscchas

Review

## 1 Toxicity of Polymeric Nanodrugs as Drug Carriers

2 Ananda Babu Sairam,\* Anandhavelu Sanmugam,\* Ashwini Pushparaj, Gaayathri Mahesh Kumar,  
3 Nithila Sundarapandian, Sulakshuna Balaji, Muthuchamy Nallal,\* and Kang Hyun Park\*



Cite This: <https://doi.org/10.1021/acs.chas.3c00008>



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4 **ABSTRACT:** The ambiguity of certain diseases and the potential  
5 toxicity of many medications have sparked demand for the  
6 incorporation and enhancement of drug delivery systems (DDSs).  
7 Nanomedicine has received renewed attention in modern medical  
8 advancements with therapeutic uses. Therefore, the development of  
9 nanomedicines for enhanced bioaccessibility, long drug administration,  
10 and dose reduction has advanced as a unique concept. Nanocapsules,  
11 nanoemulsions, drug nanocrystals, micelles, solid lipid nanoparticles  
12 (SLNs), and polymeric nanoparticles (poly-NPs) are among the most  
13 effective nanomedicine techniques. Poly-NPs have emerged as a  
14 potential method to enhance drug pharmacokinetics. Pharmaceutical  
15 potency can be increased by using nanocarriers and medication  
16 formulations. The potential of poly-NPs to alter contemporary  
17 medicine has attracted significant interest; polymer adaptability makes them suitable for site-specific drug delivery requirements.

18 However, little is known about their safety in long-term studies using high-pitched doses. These cells exhibit some extrapyramidal  
19 symptoms (EPS) because of the reactivity and size reduction of the polymers chosen by using living cells other than the target. With  
20 an increased understanding of polymers and their properties, it is equally important to emphasize the safety and toxicity of DDSs.  
21 Some of the toxic effects of polymeric nanodrugs include an increase in the cytotoxicity of the cell, reduction in the feasibility of the  
22 cell, increase in the rate of programmed cell death (apoptosis), precursors for tumor formation, DNA destruction, gene toxicity,  
23 rupture of the cell membrane, and lipid peroxidation reactions. In this article, we discuss the toxicity of nanoparticles (NPs) used in  
24 DDSs, including polylactide-*co*-glycolide, polylactic acid, polycaprolactone, and poly(alkyl cyanoacrylates), used in DDSs.

25 **KEYWORDS:** *biodegradable polymers, nanodrug, nanomedicine, nanocarriers, drug delivery, drug toxicity, nanopolymers*

### TOXICITY OF POLYMERIC NANOPARTICLES

Physical-  
Chemical  
Processes

> Shape  
> Charge  
> Size  
> Surface Chemistry  
> Solubility

Biological-  
Chemical  
Processes

> Apoptosis  
> Necrosis  
> Ferroptosis  
> Necroptosis  
> Pyroptosis  
> Autophagy  
> Cell Cycle Arrest  
> DNA Damage

# VISIT TO THE - IRMRA, SRI CITY RESEARCH CENTRE



Dr. G. Devasagayam, HOD/ACH, and Dr. G. Baskar, AP/ACH, along with Dr. J. Venkatesan, HOD/AUT, Dean student welfare and Dr. S. Gopinath, Prof./MEC, visited the research center "Indian Rubber Manufacturers Research Association" (IRMRA) at Sri City, AP on 21/06/2023.

The team was welcomed by Mr. Paul Vannan, Senior Deputy Director, and Dr. Gnana Sandeep, Senior scientific officer IRMRA.

The IRMRA Sri City Centre focuses on the testing and investigation of rubber products as its major activity. The facility includes sophisticated and modern instruments and is capable of carrying out tests in both Mechanical and Chemical domains.

The members were explained the facilities on:

1. Raw Material Testing and Evaluation
2. Rubber samples and product testing
3. Product Development and Industrial consultancy
4. Training & Skill development

The team discussed for the possible mutual collaboration and utilize the analytical facilities.



## PAPER PRESENTED AT THE CONFERENCE

N. Nachiappan and G. Devasagayam have presented a paper on OPTIMIZATION OF THE OPERATING PARAMETERS OF A PROTON EXCHANGE MEMBRANE FUEL CELL FOR MAXIMUM POWER DENSITY in the 3rd International Conference on Recent Trends in Analytical Chemistry (ICORTAC 2023), Organised by Department of Analytical Chemistry, University of Madras, Chennai during June 26-28, 2023.

1



2

T. Balusamy and G. Devasagayam have presented a paper on EFFECT OF GRAIN SIZE AND MARTENSITIC TO AUSTENITIC RATIO ON THE CORROSION BEHAVIOUR OF AUSTENITIC STAINLESS STEEL AFTER SURFACE SEVER PLASTIC DEFORMATION in the 3rd International Conference on Recent Trends in Analytical Chemistry (ICORTAC 2023), Organised by Department of Analytical Chemistry, University of Madras, Chennai during June 26-28, 2023.

## STUDENT MENTORING

T. Balusamy, G. Devasagayam, and A.C. Vijayalakshmi, along with B.Tech. Chemical Engineering students of M. Mahadevan, SH. Mohanramm, and M. Jai Harihara Ganesh delivered a paper titled DEVELOPMENT OF POLYVINYL ALCOHOL/ZINC OXIDE COMPOSITE COATING ON MILD STEEL BY DIP COATING METHOD AND EVALUATION OF THEIR CORROSION BEHAVIOUR IN 3.5% NaCl, in the 3rd International Conference on Recent Trends in Analytical Chemistry (ICORTAC 2023), Organised by the Department of Analytical Chemistry, University of Madras, Chennai during the 26-28th of June 2023.

3

## OUR FACULTY WAS HONOURED TO CHAIR A SESSION AT THE CONFERENCE.

Dr. N. Nachiappan and Dr. T. Balusamy have chaired the session titled *Biomaterials: Synthesis and Fabrication, characteristics and applications* during the 3rd International Conference on Recent Trends in Analytical Chemistry (ICORTAC-2023) Organised by the Department of Analytical Chemistry, University of Madras, June 26-28, 2023



The session focused on the latest research in the field of biomaterials, including their synthesis, fabrication, characterization, and applications. The speakers at the session were all experts in their field and provided cutting-edge insights into the latest developments in biomaterials research. The session was well-attended and there was a lively discussion among the participants.

# GUEST OF HONOR

Dr.R. Muthucumaraswamy, Professor and Head, delivered the inaugural address in the 6th One-Day Intercollegiate Mathematics Contest Mathophilia, 2023, organised by the Department of Mathematics, Sri Sairam Engineering College, Chennai, on 8/6/2023.

  
**Sri Sairam Engineering College**  
*An Autonomous Institution | Affiliated to Anna University & Approved by AICTE, New Delhi*  
*Accredited by NBA and NAAC "A+" | An ISO 9001:2015 Certified and MHRD NIRF ranked institution*  
 Sai Leo Nagar, West Tambaram, Chennai - 600 044. [www.sairam.edu.in](http://www.sairam.edu.in)

*We, the Student members of the Mathematics Club & Staff of the*

  
**Department of Mathematics**  
*cordially invite you for the inaugural function of the*  
 6<sup>th</sup> One Day Intercollegiate Mathematics Contest

**Mathophilia**  
**2023**

Thursday, 8th June, 2023 | 9.15 a.m. | SSR Hall

  
**Dr. R. Muthucumaraswamy, Ph.D.**  
 Professor and Head, Department of Applied Mathematics  
 Sri Venkateswara College of Engineering, Chennai

*has kindly consented to deliver the inaugural address*

**Dr. PA. Shanthi**  
Convenor

**Dr. S. Ramakrishnan**  
HOD (H&S)

**Dr. K. Porkumaran**  
Principal

**Dr. Sai Prakash LeoMuthu**  
Chairman & CEO



## ACADEMIC AUDIT-EXTERNAL AUDITOR:

Dr. R. Muthucumaraswamy, Professor and Head, conducted an academic audit for the Academic Year 2022-23 in the Department of Mathematics, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai, on June 14, 2023



**Vel Tech**  
Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)



Date: 12.06.23

To  
Dr.R.Muthucumaraswamy  
Dean (Research), Professor and Head,  
Department of Applied Mathematics,  
Sri Venkateswara College of Engineering, Chennai

Dear Professor,

Greetings from Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai!!!  
Sub: Invitation to act as External Auditor for conduct of Academic Audit - Academic Year 2022-23  
– Department of Mathematics – Reg.

As one of the Best Practices of Quality improvement initiatives, Office of Quality Assurance will conduct the Academic Audit every year. In this regard, we are very much pleased to invite you as an Auditor (External Expert) to the Department of Mathematics. Based on your kind consent, you are requested to conduct the Academic Audit with respect to Audit manual version 1.0 on 14<sup>th</sup> June, 2023 (Wednesday) along with the Auditor (Internal Expert) and to submit one copy of the Audit Report to Office of Quality Assurance on the same day.

Dr. M. L. Suresh, HoD (Mathematics) will be in touch with you to follow up your itinerary. Your kind service in this regard is highly acknowledged.

Mobile Number of Dr. M. L. Suresh: 9444116609

Thanking You,

Regards

*MJK 12/06/23*  
Dr. M. Rajeev Kumar  
Dean (Quality Assurance)



**Dr. M. Rajeev Kumar**  
Dean - Quality Assurance

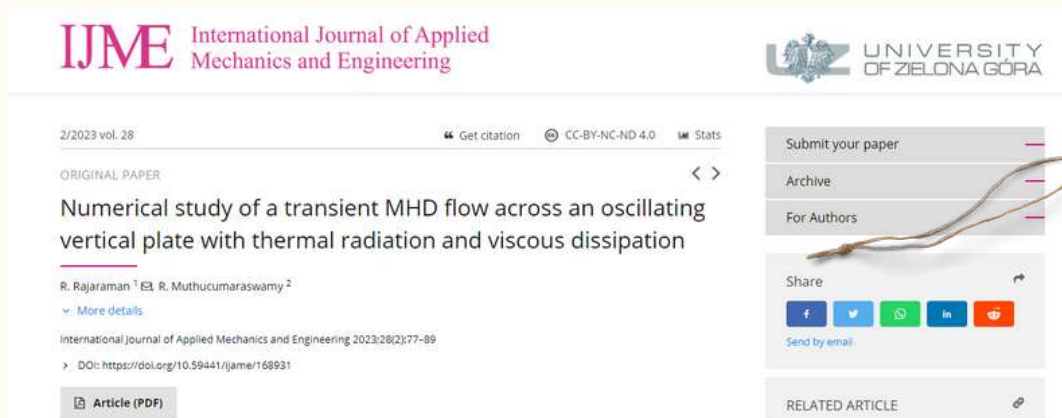
**Vel Tech**  
Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

## DR. R. MUTHUCUMARASWAMY, PROFESSOR AND HEAD, PUBLISHED THE FOLLOWING RESEARCH ARTICLES

"Precise Fourier Series and Fuzzification method analysis of Standardized Thermal Energy of Solar Box Cooker Performance: Economic and Environmental Studies", along with Soundararajan Bhavani, Kumaresan Nandini, Venkatesan Chithambaram, & Sengottaiyan Shanmugan in *Environmental Science and Pollution Research*, 30, 77890- 77904 (2023), June,2023.



"Numerical Study of Transient MHD Flow across an Oscillating Vertical Plate with Thermal Radiation and Viscous Dissipation", along with R. Rajaraman in *International Journal of Applied Mechanics and Engineering*, vol. 28, no. 2, pp. 77-89, 2023. DOI:10.59441/ijame/168931.



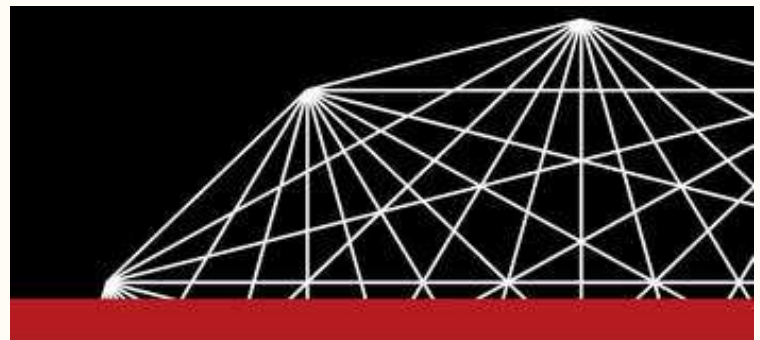
"Impacts of Chemical Reactions on Inclined Isothermal Vertical Plate" , along with M. Sundar Raj, G. Nagarajan, and V.P. Murugan in the *International Journal of Applied Mechanics and Engineering*, vol. 28, No. 2, pp. 64-76, 2023. DOI:10.59441/ijame/168439.





## BOOK CHAPTER PUBLISHED

Dr. J. Vijayarangam, Assistant Professor, published a Book Chapter titled "Single Product Inventory System Serving Israeli Queued Customers with Batch Service and Instantaneous Replenishment Policy", along with Karthikeyan, Viswanath, and Dora Pravina, Recent Trends in Computational Intelligence and its Applications, CRC Press, 1st Edition, 8 pages, 2023 eBook ISBN: 9781003388913.



## RECENT TRENDS IN COMPUTATIONAL INTELLIGENCE AND ITS APPLICATION

PROCEEDINGS OF THE 1ST INTERNATIONAL CONFERENCE ON  
RECENT TRENDS IN INFORMATION TECHNOLOGY AND ITS  
APPLICATION (ICRTITA, 22)

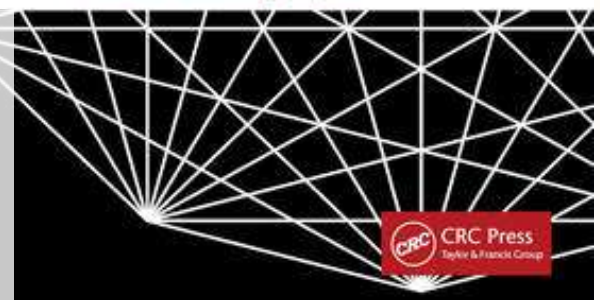
Edited by  
Sugumaran D, Souvik Pal, Dac-Nhuong Le  
and Noor Zaman Jhanjhi

Single Product Inventory System  
Serving Israeli Queued  
Customers with Batch Service  
and Instantaneous  
Replenishment Policy

By *T. Karthikeyan, J. Viswanath, C. T. Dora Pravina, J. Vijayarangam*

Book [Recent Trends in Computational Intelligence and Its Application](#)

Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	8
eBook ISBN	9781003388913



# PATENT PUBLISHED

Dr. R. Umadevi, Dr. K. Vijayalakshmi, Assistant Professors/APM, and Ms. R. Sumathy (Research) Scholar), Ms. D. Arivukkodi (Research Scholar) , Mr. S. Prabhakar (Research Scholar), and Ms. M. Gomathi (a research scholar) filed an Indian patent titled Comparative Study of Reversible (Esterification Process) and Irreversible Flows on Three-Dimensional Upper Convective Maxwell Fluid Model for Rate of Heat Transfer Due to Activation Energy which was published on June 16, 2023. Application No.202341035158 A, The Patent Office Journal No. 24/2023 Dated June 16, 2023 (43191)

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202341035158 A

(19) INDIA

(22) Date of filing of Application :19/05/2023

(43) Publication Date : 16/06/2023

(54) Title of the invention : "COMPARATIVE STUDY OF REVERSIBLE (ESTERIFICATION PROCESS) AND IRREVERSIBLE FLOWS ON THREE DIMENSIONAL UPPER CONVECTIVE MAXWELL FLUID MODEL FOR RATE OF HEAT TRANSFER DUE TO ACTIVATION ENERGY"

(51) International classification :A63F 091200, B61G 111600, C07C 670800, D01F 080800, F16D 655600  
 (86) International Application No :NA  
 Filing Date :NA  
 (87) International Publication No :NA  
 (61) Patent of Addition to Application Number :NA  
 Filing Date :NA  
 (62) Divisional to Application Number :NA  
 Filing Date :NA

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 3)Ms. R. SUMATHY  
 4)Ms. D. ARIVUKKODI  
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Name of Applicant : NA  
 Address of Applicant : NA

(72)Name of Inventor :

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 -  
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 -----  
 6)Ms. M. GOMATHI  
 Address of Applicant :SRI VENKATESWARA COLLEGE OF ENGINEERING, PENNALUR, SRIPERUMBUDUR TALUK, CHENNAI, TAMILNADU, INDIA, 602117. -----

(57) Abstract :

This article enumerates the heat/mass transfer effects on three dimensional boundary layer flow of mixed upper convective Maxwell fluid over a stretching surface using Modified Arrhenius function for activation energy along with Deborah number. The governing equations in the form of partial differential equation is converted into ordinary differential equations by using similarity transformations. Then the equations are modelled and proceeded by fourth order Runge Kutta based Shooting method and the findings are verified by bvp4c method. Equilibrium reaction is considered under the reaction of sulphuric acid and effects of both reversible and irreversible flows are presented in graphs and variations are noted. Rate of heat transfer is recorded and projected in 3D graphs and results have been discussed. There is a decrease in reversible flow and also opposite trend is noted in irreversible flow in the rate of heat transfer when there is a increase in activation energy. It is clearly noted that rate of heat transfer is predominantly high in irreversible flow compared to reversible flow for increasing Deborah number.

No. of Pages : 9 No. of Claims : 4

## FDP ATTENDED

Dr. M. Radhakrishnan, Assistant Professor, attended an online International FDP on Recent Trends in Graph Theory and Mathematical Modelling and its Applications," conducted by the Department of Mathematics, Mohamed Sathak A.J. College of Engineering, Siruseri, Chennai from June 12, 2023, to June 16, 2023

## CONFIRMATION MEETING

Ms.Visalakshi Subramanian, Assistant Professor and Part-Time Research Scholar, AU Research Centre, Department of Mathematics, successfully completed her confirmation of the DC Meeting on June 9, under the guidance of Dr.R. Muthucumaraswamy, Professor and Head. Title of her Research Work: Counting Polynomial of Certain Graphs

## WORKSHOP ATTENDED

Dr. T. Senthilnathan, AP, and Ms. G. Bharathy, AP Department of Applied Physics, participated in a webinar on exploring "Google Bard AI" for Teachers conducted by Scrollwell on June 20, 2023.



## PAPER PRESENTED AT THE CONFERENCE

Ms. G.Bharathy, AP, Dept. Of Applied Physics presented paper entitled Electronic and biological interactions between N-[4-(Ethylsulfamoyl)phenyl]acetamide and some polar liquids (IEFPCM solvation model) with Fukui function and molecular docking analysis" in the 3<sup>rd</sup> International Conference on Recent Trends in Analytical Chemistry at University of Madras from 26<sup>th</sup> June 2023-28<sup>th</sup> June 2023.



## WORKSHOP ATTENDED

Dr.Murugavel.T attended the online training program on “Institution Innovation Council; Innovation Ambassador on 29th June 2023 organized by IA Foundation.

**Sri Venkateswara College of Engineering, Tamil Nadu**

Date of Issue: 29-06-2023

E-certificate No: IA/Foundation/1025445

IIC ID: IC201810371

Ms.Anichamalar attended a six-day National Level Workshop on “MOODLE: LMS” from 7th June 2023 till 12th June 2023 organized by ESSGEE DIGISKILLS.

Ms. Anichamalar and Dr.Bhargavi attended a webinar on “ Exploring & Google Bard AI for Teachers ” on 20th June 2023 organized by ScrollWell.

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## FDP ATTENDED

Dr.Bhargavi attended an International FDP on “ Writer's Voice Through Ethos, Structure, and Granularity in Creative Writing ” on 25th June 2023 conducted by the Elt@i Association.

# THE AGENDA NEWSLETTER

FROM THE DEPARTMENTS OF SCIENCE AND HUMANITIES

(APPLIED CHEMISTRY, APPLIED MATHEMATICS, APPLIED PHYSICS &  
HUMANITIES AND SOCIAL SCIENCES)

## EDITORIAL TEAM

*Dr. G. Devasagayam*  
*Professor & Head*  
*Department of Applied*  
*Chemistry*

*Dr. S. Ananda Babu*  
*Assistant Professor*  
*Department of Applied*  
*Chemistry*

*Dr. A. Subbu alias Suba*  
*Assistant Professor*  
*Department of Applied*  
*Mathematics*

*Dr. T. Senthilnathan*  
*Assistant Professor*  
*Department of Applied*  
*Physics*

*Mr. S. Bharathikumar*  
*Assistant Professor*  
*Department of Humanities*  
*and Social Sciences*

“

No amount of  
experimentation can  
ever prove me right;  
a single experiment  
can prove me  
wrong.

*Albert Einstein*

”

SRI VENKATESWARA COLLEGE OF ENGINEERING  
CHENNAI - BENGALURU HIGHWAYS  
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TAMIL NADU, INDIA

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