

DEPARTMENT OF PHYSICS

Monthly News Letter – 2021

January 2021

1. **“Certificate of Grant Innovation PATENT”**: Dr. G H Pujar (Asst. Professor & Head, Dept. of Physics & CoE) and Dr. Santhosh B M (Asst. Professor, Dept. of Chemistry) have received **‘Certificate of Grant Innovation PATENT’** from Indian Govt. on 8th Jan. 2020.

Application Details	
APPLICATION NUMBER	202141000258
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	04/01/2021
APPLICANT NAME	1 . DR. GONIBASAPPA PUJAR 2 . DR. PRAKASH K K 3 . DR. SANTHOSH B M 4 . DR. MANJUNATHA S 5 . DR. VIRUPAXAPPA S BETAGERI 6 . DR. GURUMURTHY D M 7 . DR. PAVAN K J 8 . DR. M.KANAGARATHINAM 9 . DR.C.BOOPATHI 10 . DR. RAMAPPA RAGHAVENDRA 11 . DR. ONKARAPPA H S 12 . DR. ADARSH K S
TITLE OF INVENTION	Enhanced Storage Method of Gravitational Energy to Manage Renewable Resources
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	sjgawande@gmail.com
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	08/01/2021

Application Status	
APPLICATION STATUS	Awaiting Request for Examination
View Documents	
→ Filed → Published → RQ Filed → Under Examination → Disposed	



2. **“Paper Publication @ Scopus International journal”**: Dr. G H Pujar (Asst. Professor & Head, Dept. of Physics & CoE) published a collaborative research article (With Lucknow University, Lucknow, Utter Pradesh) in the Scopus International journal published by AIP - 2021.

Title: *‘Nanoparticle Surface Energy Transfer (NSET) in Ferroelectric Liquid Crystal-Metallic Silver Nanoparticles Composites: Effect of Dopant Concentration on NSET Parameters’*

PHYSICAL REVIEW E
covering statistical, nonlinear, biological, and soft matter physics

Highlights Recent Accepted Collections Authors Referees Search Press About Staff

Accepted Paper

Nanoparticle surface energy transfer (NSET) in ferroelectric liquid crystal – metallic silver nanoparticles composites: Effect of dopant concentration on NSET parameters
Phys. Rev. E

T. Vimal, G. H. Pujari, K. Agrahari, Sanjeev R. Inamdar, and R. Manohar
Accepted 28 January 2021

ABSTRACT

ABSTRACT

In the recent past, the resonance energy transfer studies using metallic nanoparticles has become a matter of quintessence in modern technology, which considerably extends its applications in probing specific biological and chemical processes. In the present study, metallic silver nanoparticles of 2-4 nm (diameter) capped with hexanethiol ligand are developed and dispersed in ferroelectric liquid crystal (FLC). The morphology of nanoparticles was characterized using HR-TEM and SEM techniques. Further, a systematic study of energy transfer between the host FLC material (as donors) and metallic silver nanoparticles (as acceptors) has been explored employing steady state and time resolved fluorescence spectroscopic techniques. The nanoparticle based surface energy transfer (NSET)



3. **“Paper Presentation @ International Conference”:** Dr. Swaroop K. (Asst. Professor, Dept. of Physics), presented a research article entitled ‘*Swelling and Mechanical Properties of ZnO/PVA Hydrogel Nanocomposites Synthesized using Gamma Irradiation Technique*’ in the virtual International Conference on Recent Advances in Nanotechnology and Material Sciences (ICRTNM-2021) organized by St. Joseph's College for Women, Alappuzha, Kerala during 18th to 20th January 2021.



February 2021

1. **“Paper Publication @ Scopus International journal”:**

Dr. G H Pujar (Asst. Professor & Head, Dept. of Physics & CoE) published a collaborative research article (With Lucknow University, Lucknow, Utter Pradesh) in the Scopus International journal published by American Physical Society (APS) -2021. Impact Factor: 2.293

Title: ‘*Nanoparticle Surface Energy Transfer (NSET) in Ferroelectric Liquid Crystal-Metallic Silver Nanoparticles Composites: Effect of Dopant Concentration on NSET Parameters*’

PHYSICAL REVIEW E 103, 022708 (2021)



Nanoparticle surface energy transfer (NSET) in ferroelectric liquid crystal-metallic-silver nanoparticle composites: Effect of dopant concentration on NSET parameters

T. Vimal,¹ **G. H. Pujar,**^{2,3} K Agrahari,¹ Sanjeev R. Inamdar³ and R. Manohar^{1,*}

¹Liquid Crystal Research Lab, Physics Department, University of Lucknow, Lucknow 226007, India

²Department of Physics, GM Institute of Technology, Davangere 577 006, Karnataka, India

³Laser Spectroscopy Programme, Department of Physics and UGC-CPEPA, Karnatak University, Dharwad 580003, India

(Received 5 October 2020; accepted 28 January 2021; published 25 February 2021)

In the recent past, the resonance energy transfer studies using metallic nanoparticles has become a matter of quintessence in modern technology, which considerably extends its applications in probing specific biological and chemical processes. In the present study, metallic-silver nanoparticles of 2–4 nm (diameter) capped with hexanethiol ligand are developed and dispersed in ferroelectric liquid crystal (FLC). The morphology of nanoparticles was characterized using HR-TEM and SEM techniques. Furthermore, a systematic study of energy transfer between the host FLC material (as donors) and metallic-silver nanoparticles (as acceptors) has been explored employing steady state and time resolved fluorescence spectroscopic techniques. The nanoparticle based surface energy transfer (NSET) parameters viz., transfer efficiency, transfer rate, and proximity distance between donor and acceptor, have been determined for NSET couples (FLC material-metallic-silver nanoparticle) composites. It is observed that various NSET parameters and quenching efficiency follow a linear dependence on the concentration of metallic-silver nanoparticles in host FLC material. The nonradiative energy transfer and superquenching effect were analyzed with the help of Stern-Volmer plots. The impact of present study about superquenching effect of the silver nanoparticles can be used for sensing applications that require high degree sensitivity.

DOI: 10.1103/PhysRevE.103.022708



2. “Paper Publication @ Scopus International journal”:

Dr. Swaroop K (Asst. Professor Dept. of Physics) published a Chapter in the book entitled ‘Current Perspectives on chemical Sciences’ (with Mangalore University, Mangalore and KSHEMA, NITTE university, Mangalore) published by Book Publisher International-2021.

Title: ‘Swelling Studies of PVA/Gelatin Hydrogels Synthesized using Gamma Irradiation Technique’



March 2021

1. Keynote Speaker @ National Level Conference

Dr. Swaroop K (Asst. Professor Dept. of Physics) delivered a **keynote address** in National conference on “Recent Trends in Applied Aspects of Biological Science-2021 (NCRTAABS-2021), PGS College of Arts and Science, Coimbatore on 19th and 20th March 2021.

Title: ‘Radiation Assisted Hydrogel Nanocomposites for Biomedical Applications’



2. Scientific Committee Member

Dr. G H Pujar (Asst. Professor & Head, Dept. of Physics & CoE) has been invited as an **“Scientific Committee Member”** for **ICFTEN-2021** Conference which is going to be held on 20th and 21st May, 2021 in association with IFERP (**Institute for Engineering Research and Publication**), organized by Rao Bahadur Y Mahabaleswarappa Engineering College, Ballari & IFERP.



 Gmail Dr. GH Pujar <puttpuja@gmail.com>

Invitation to Scientific Committee Member of ICFTEN-2021 RYMEC, Ballari, Karnataka

ICFTEN Conference <info@icften.com> Tue, Mar 23, 2021 at 6:37 PM
To: puttpuja@gmail.com

2nd INTERNATIONAL CONFERENCE ON FUTURISTIC TRENDS IN EMBEDDED SYSTEMS AND NETWORKING

ICFTEN-2021 VIRTUAL CONFERENCE
Organized By
Rao Bahadur Y Mahabaleswarappa Engineering College, Ballari & IFERP

Dear Pujar,

As being a IFERP Member, we are delighted to invite you to be an **“Scientific Committee Member”** for **ICFTEN-2021** Conference which is going to be held on **20th and 21st May, 2021** in association with IFERP (**Institute For Engineering Research and Publication**).

Conference Tracks on:

- ✓ Electrical and Electronics Engineering (EEE)
- ✓ Electronics and Communications Engineering (ECE)
- ✓ Computer Science Engineering (CSE)
- ✓ Information Science Engineering (ISE)
- ✓ Mechanical Engineering (ME)
- ✓ Telecommunication Engineering (TCE)

Accepted and Registered papers will be published in Scopus / Web of Science Journals.

Request to reply to this mail at the earliest to confirm your participation as a scientific committee member. Send us your updated CV and Professional Photograph for Website Display.

Theme: “Promoting the Innovative Disciplines into Experimental Research in various fields of Engineering and Technology”.

Please Respond at Your Earliest Convenience.

For further details: <https://icften.com>
Email: info@icften.com
WhatsApp link: https://api.whatsapp.com/send?phone=919345534219&text&app_absent=0

Best Regards,
Conference Coordinator
ICFTEN-2021
WhatsApp: +91- 9345534219

April - 2021

1. Attended Workshop

Dr.Swaroop K., has participated in virtual national dialogue on “Manufacturing Excellence and Innovation for Competitiveness and Sustainability of Chemical Manufacturing” on 6th of April 2021, conducted by United Nations Industrial Development Organisation (UNIDO), New Delhi, India.



May-2021

1. Faculty Development Program on “ICT Tools for Faculty” (Online LIVE FDP)- (ICT Academy)

Dr. G H Pujar (Asst. Professor & Head, Dept. of Physics & CoE), participated in One week Faculty Development Program on ‘*ICT Tools for Faculty*’ organized by ICT Academy, during 17th-21st May 2021.



June-2021

Paper Published @ Scopus International journal

Dr.Swaroop K Assistant Professor, Department of Physics has published a research article entitled “**An Examination of the Radiation Induced Defects and Thermo-luminescence Characteristics of Sm_2O_3 doped $BaO - ZnO - LiF - B_2O_3$ Glass Systems for Gamma Dosimetry Applications**” in the international Journal “**Optical Materials**”



Research Article

An examination of the radiation-induced defects and thermoluminescence characteristics of Sm_2O_3 doped $BaO-ZnO-LiF-B_2O_3$ glass system for γ -dosimetry application

Nimitha S. Prabhu^a, K. Sharmila^b, Swaroop Kumaraswamy^c, H.M. Somashekarappa^b, M. I. Sayyed^{d,e}, Hanan Al-Ghamdi^f, Aljawhara H. Almuqrin^g, Sudha D. Kamath^{h,i}

^a Department of Physics, Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, Karnataka, India

^b Centre for Application of Radioisotopes and Radiation Technology (CART), Mangalore University, Mangalagangothri, Karnataka, India

^c Department of Physics, G.M Institute of Technology, Davangere, 577006, Karnataka, India

^d Department of Nuclear Medicine Research, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman bin Faisal University (IAU), P.O. Box 1982, Dammam, 31441, Saudi Arabia

^e Department of physics, Faculty of Science, Irbid University, Amman, Jordan

^f Department of Physics, College of Science, Princess Nourah Bin Abdulrahman University, Riyadh, Saudi Arabia

Paper Accepted@ Scopus International journal

Research article entitled “**Studies on Effect of Fe₃O₄-PbO combination in Peroxide Vulcanization of EPDM and Shielding 59.54 keV Gamma rays**” has been accepted in “**Radiation Effects and Defects in Solids**” journal, which was submitted by **Dr. Swaroop K** Assistant Professor, Department of Physics.

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July-2021

“National level TOYCATHON 2021 Competition-2021”:
BE First year CSE students: *Navpreetum, Pranav, Shravan, and Shivashankar* have shortlisted and participated in **POWER JUDGE ROUND** of **Grand Finale - TOYCATHON 2021**, conducted by Govt of India.

Mentor/Guide: **Dr. G H Pujar** (Asst. Prof. & HoD Physics)

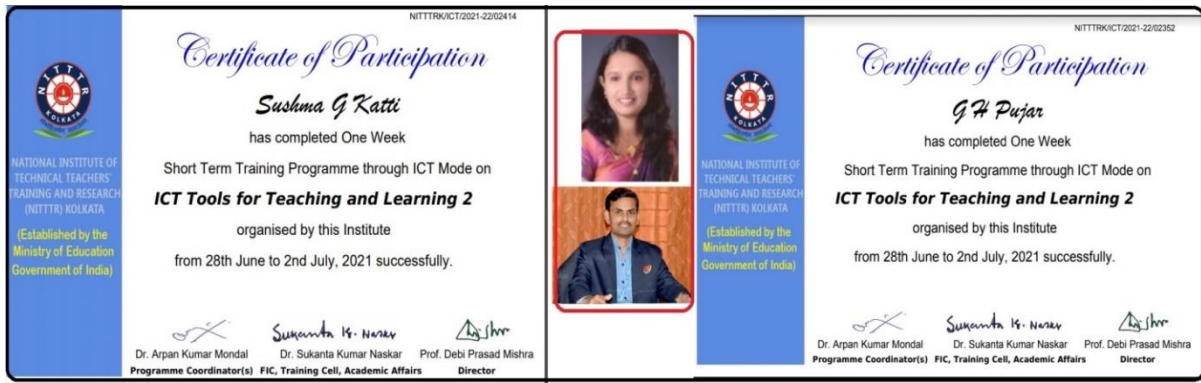
Team name: “ROCK-VED”-

Theme: Indian History, Knowledge of India and Ethos



Online Short-Term Training Programme (STTP) on “ICT Tools for Teaching and Learning- (NITTTR, Kolkata)

Dr. G H Pujar (Asst. Prof. & HoD, Dept. of Physics) and **Smt. Sushma Katti** (Asst. Professor, Dept. of Physics), have successfully completed one week ‘Short Term Training Programme’ through ICT Mode on ‘*ICT Tools for Teaching and Learning*’ organised by National Institute of Technical Teachers Training and Research (NITTTR), **Kolkata** from 28th June to 2nd July, 2021.



August-2021

Paper Published @ Scopus International journal

Dr. Swaroop K., Assistant Professor, Dept. of Physics has published an article entitled “Studies on the effects of Fe₃O₄-PbO combinations in peroxide vulcanization of EPDM and shielding 59.54 keV gamma rays” in Scopus indexed journal, Radiation Effects and Defects in Solids (Taylor and Francis).



Studies on the effects of Fe₃O₄-PbO combinations in peroxide vulcanisation of EPDM and shielding 59.54 keV gamma rays

Vinayak Anand Kamat, K. Swaroop, K. U. Kiran, K. M. Eshwarappa & H. M. Somashekarappa

To cite this article: Vinayak Anand Kamat, K. Swaroop, K. U. Kiran, K. M. Eshwarappa & H. M. Somashekarappa (2021): Studies on the effects of Fe₃O₄-PbO combinations in peroxide vulcanisation of EPDM and shielding 59.54 keV gamma rays, Radiation Effects and Defects in Solids, DOI: 10.1080/10420150.2021.1935942

To link to this article: <https://doi.org/10.1080/10420150.2021.1935942>



September - 2021

Participated in FDP

Dr. Santhosh B M. (Asst. Prof., Dept. of Chemistry) and Dr. Swaroop K (Asst. Prof., Dept. of Physics) have participated in one Week Faculty Development program on “Center of Excellence for Innovation, Research and Entrepreneurship”, organized by Atal Incubation Center, Jyothi Institute of Technology Foundation Bangalore, in Association with GM Institute of Technology Davangere, Karnataka during 27th Sept-01st Oct 2021.



Best Project Award: 2020-21



The Student Funded Project entitled “**Areca Sheath: An Innovative Material for Acoustics and Noise Control**” is sponsored by **Karnataka State Council for Science and Technology (KSCST)** under 44th series of the Student Project Programme for the year 2020-2021 and awarded as “**Best Project of the Year**”.

Guide : Dr. Srinivasa C V

Co-Guide : **Dr. G H Pujar**

KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY


Indian Institute of Science Campus, Bengaluru – 560 012
: <http://www.kscst.iisc.ernet.in/spp.html> || Email: spp@kscst.iisc.ernet.in || Phone: 080-23341652, 2334884

ಕರ್ನಾಟಕ ಸರ್ಕಾರ


44th Series of Student Project Programme: 2020-21

“BEST PROJECTS OF THE YEAR AWARD”

44S_BE_2571	ARECA SHEATH: AN INNOVATIVE MATERIAL FOR ACOUSTICS AND NOISE CONTROL	G.M. INSTITUTE OF TECHNOLOGY, DAVANAGERE	Dr. SRINIVASA C.V Dr. G H PUJAR	Mr. BHARATH SHARMA Ms. BHOOMIKA D Ms. SAHYADRI KALLIMANI Mr. NAVEEN K
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Dr. SRINIVASA C.V.
Project Guide

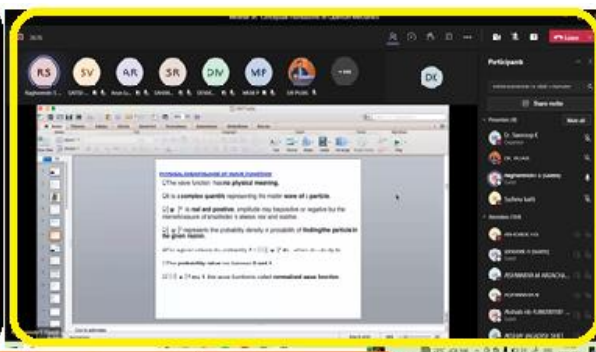


Dr. G H PUJAR
Co-Guide

Two Days Webinar (State level) Organized by Department of Physics

The Department of Physics has organized **Two Days Webinar** on “**Conceptual Foundations of Quantum Mechanics**” on **14th and 15th September**. First year students of GMIT and other participants from various institutes of Karnataka have participated actively. **Dr. Raghavendra S**, Assistant Professor and HOD, Shri Dharmasthala Manjunatheshwara College (Autonomous), Ujire, has delivered the special lecture on basic concepts of Quantum Mechanics. The lecture sessions were very much useful for the curriculum of first year Engineering Students and to understand the concepts of Quantum Mechanics in their future as well. Overall, 370 Participants have taken advantage of this Session.

Dr. Y Vijaykumar, Principal inaugurated the event and addressed the participants. **Dr. Swaroop K, Organizing Secretary**, has welcomed the Guest and Introduced the Resource Person. **Dr. G H Pujar, Convener** has addressed the participants and delivered the Vote of Thanks. **Mrs. Sushma Katti** has done the Master of Ceremony for the event.



October – 2021

Review Article Published @ National journal

Dr. Onkarappa HS (Asst. Prof., Dept. of Chemistry), Dr. VS Betageri (Prof.&Head, Dept. of Chemistry), Shilpa VA (Asst. Prof., Dept. of Chemistry), Smt. Sushma Katti (Asst. Prof., Dept. of Physics) and Dr. G H Pujar (Asst. Prof.& Head, Dept. of Physics), have published a review article entitled "*Extraction of Nanocellulose for Futuristic Materials*" in the ISSN Indexed journal, Journal of Science, (KU J of Science)

Karnatak University Journal of Science 52 (2021) 1-13

Karnatak University Journal of Science

ISSN: 0075-5168

Extraction of Nanocellulose for Futuristic Materials

Onkarappa H S¹, Radha V¹, Nikhileshwar V¹, Virupaxappa S Betageri^{1*}, Nandeshwarappa B P², Latha M S³, Shilpa V Allipur¹, Sushma Katti⁴, G H Pujar^{4*}

¹Research Centre, Department of Chemistry, GM Institute of Technology, Davangere, Karnataka, India-577006
²Research Centre, Department of Chemistry, Davangere University, Davangere, Karnataka, India-577004
³R L Science Institute (Autonomous), Belagavi Karnataka, India
⁴Research Centre, Department of Physics, GM Institute of Technology, Davangere, Karnataka, India-577006
 *Corresponding author: puttpuja@gmail.com

ARTICLE INFO	ABSTRACT
<p>Article history: Received: 30 May 2021; Revised: 2 June 2021; Accepted: 14 June 2021</p> <p>Keywords: Nanocellulose; Acid hydrolysis; TEMPO Oxidation; Ionic Liquids; Nanocrystals;</p>	<p>In frontier applications, there is a never-ending demand for nanocellulose due to its unique compatibility and ability to fit in. It has impressive characters like presence of rich hydroxyl group, physical and mechanical properties, high surface area and thermal stability. In this review, the background of nanocellulose originated from lignocellulosic biomass and the typical extraction methods like acid hydrolysis, TEMPO oxidation and Ionic liquid methods are summarized with a detailed procedure to obtain nano cellulose. It is expected to provide a complete guidance on the types of nanocellulose and detailed extraction methods.</p>

1. Introduction

Over the years, natural bio-polymers like alginate, starch, collagen, elastin, chitosan and cellulose material and stimulates great interest in scientific attention [6]. The stiffness of the exterior parts in plants is credited to the existence of cellulose along with

Participated in Two Week FDP

Smt. Sushma G Katti (Asst. Prof., Dept. of Physics) and Shilpa VA (Asst. Prof. Dept. of Chemistry) have participated in AICTE Sponsored Two Weeks National Level Faculty Development Program on “Empowering Teaching Learning Using Modern Pedagogy Tools in Technical Education” organized by Dept. of Mechanical Engineering, UBBDT College of Engineering, Davangere, during 18th -30th Oct 2021.



November – 2021

Project Selected for ‘Faculty Project Programme’ @ KSCST

KSCST has started a new initiative titled "Faculty Project Program (FPP)" to support product/services development. Under this new initiative, KSCST is inviting project proposals from faculty/project guides of those projects awarded as best project of the year/projects selected by committee for further development / prototype under the 40th Series to 44th Series of Student Project Programme (SPP).


The Student Funded Project entitled “Areca Sheath: An Innovative Material for Acoustics and Noise Control” is selected for ‘Faculty Project Programme’ by KSCST.

Guide : Dr. Srinivasa C V
Co-Guide : Dr. G H Pujar

KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
Indian Institute of Science Campus, Bengaluru – 560 012
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List of projects selected for Faculty Project Programme


44S_DE_2571	ARECA SHEATH: AN INNOVATIVE MATERIAL FOR ACOUSTICS AND NOISE CONTROL	G.M. INSTITUTE OF TECHNOLOGY, DAVANAGERE	Dr. SRINIVASA C V Dr. G H PUJAR	Mr. BHARATH SHARMA Ms. BHOOHKA D Ms. SAHYADRI KALLIMANI Mr. NAVEEN K
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Announcements

FACULTY PROJECT PROGRAMME

Click on this link for details...



Dr. SRINIVASA C.V.
Project Guide



Dr. G H PUJAR
Co-Guide

Orientation Program for First Year BE students-2021 Batch

Orientation program was conducted for First Year BE students from 18th to 27th November 2021 organized by Basic Science department. This program had several pep-talks by Principal, HOD's of various departments. The talks were including engineering skills and its importance, human values, importance of engineering in basic science, tips for success, computer awareness, importance of research in engineering career, major issues of environment, way to dreams, quality of education, opportunities in IT industries and so on.

Dr. Y Vijaykumar, Principal inaugurated the program and enlighten the students. **Dr. V S Betageri**, HoD-Chemistry, welcomed the Guests and budding engineers. **Dr. Onkarappa K S**, HoD-Basic Science and **Dr. Sunilkumar B S**, Dean-Acedamics & HoD-ISE have briefed about the programm and its importance. **Dr. G H Pujar**, HoD-Physics, delivered the Vote of Thanks. **Mrs. Sushma Katti**, Asst. Prof., Dept. Of Physics, has done the Master of Ceremony for the event. This program was successfully conducted and well organized with the support of all faculty of Basic Science department.

Orientation Program-Snaps



Coordinators



Sushma Katti
Asst. Prof-Physics



Dr. pavitra K S
Asst. Prof-Chemistry



Savitha K C
Asst. Prof-Mathematics

December – 2021

Review Article Accepted @ Scopus International journal

Dr. Swaroop K, (Asst. Professor, Dept. of Physics), published a Scopus Indexed review article in **Sensor Review** entitled of “**A Review: Electrical and Gas Sensing Properties of Polyaniline/Ferrite Nanocomposites**” in the reputed international journal (Emerald publishing) in collaboration with Davanagere University, Presidency University and Reva University Bangalore.

Sensor Review

Preview (SR-02-2021-0051)

From: muravyov@tpu.ru

To: tjs3294@gmail.com, prasannagd@davangereuniversity.ac.in, chaturmukha.vs@gmail.com, gnsathishreddy@gmail.com, swaroop.k.acharya@gmail.com, naveen@presidencyuniversity.in

CC:

Subject: S - Sensor Review - Decision on Manuscript ID SR-02-2021-0051.R2

Body: Dear R, Thejas; G D, Prasanna; V S, Chaturmukha; Reddy, Sathish; Kumaraswamy, Swaroop; S, Naveen

It is a pleasure to accept your manuscript SR-02-2021-0051.R2, entitled "A Review: Electrical and Gas Sensing Properties of Polyaniline/Ferrite Nanocomposites" in its current form for publication in Sensor Review. Please note, no further changes can be made to your manuscript.



Induction Program for 1st year BE students (2021-22):

The induction programme was brought in with a view to uplift the level of the entrants to an elevated stage, promote all-round development and exposing learners' stigmas to minimize and to maximize their learning. Learners come with diverse thoughts, backgrounds, & perceptions. Hence, it becomes important to help them adjust to the new environment & inculcate the ethos of the institution with a sense of larger purpose. That is where the lacuna lies which demands a program dynamic enough to address the issue. **GM Institute of Technology, Davangere** has organized one week 'Induction Programme' with an objective to provide ample of time and a platform for the transition of students from school to the hard-core engineering. An induction programme is a harbinger of various in-campus & off-campus activities specially designed for entrants to fill the gap. The Induction Programme was organized by the Institution Induction Program Cell (IIPC), GM Institute of Technology, Davangere.

During the Induction programme various sessions were conducted by eminent people/subject experts as per the following Schedule

S.No	Date & Day	Resource Person	Topic
1	13 th Dec 2021 Monday	Mr. Sharath G N Director Copper Age study circle for competitive exams	How to Plan your Future while in Degree
2	14 th Dec 2021 Tuesday	Mr. Manjunath H B Press Reporter, Davangere	Indian Culture and Student life
3	15 th Dec 2021 Wednesday	Mr. Ravindra Kulkarni Health Advisor, Ranebennur	Health Awareness
4	16 th Dec 2021 Thursday	Dr. Jayasimha MBBS, MD SS High Tech Hospital, Davangere	Awareness of COVID-19

5	17 th Dec 2021 Friday	Dr. Shishupal Prof, Dept of Microbiology Davangere University	Role of Youth in Environmental Conservation
6	18 th Dec 2021 Saturday	Field Visit	Kondajji

Co-Ordinators: Mrs. Savitha K C, Mrs. Sushma Katti, Dr.Pavithra K C

Induction Program selected Pics:



DEPARTMENT OF PHYSICS

Monthly News Letter – 2022

January – 2022

Paper Published @ Scopus International journal

Dr. G H Pujar (Assistant Professor & HoD, Dept. of Physics) has published a research article entitled “**Facile green synthesis of ZnO–CuO nanocomposites using areca catechu leaves and their in vitro antidiabetic and cytotoxicity studies**” in Scopus indexed journal “*Adv. Nat. Sci.: Nanosci. Nanotechnol*” (IOP Publisher) in January-2022.

IOP Publishing | Vietnam Academy of Science and Technology
Adv. Nat. Sci.: Nanosci. Nanotechnol. 12 (2022) 045011 (9pp)
https://doi.org/10.1088/2043-6262/ac4141

Facile green synthesis of ZnO–CuO nanocomposites using *areca catechu* leaves and their *in vitro* antidiabetic and cytotoxicity studies

U R Shwetha¹, M S Latha², Virupaxappa S Betageri¹, **G H Pujar³**, C R Rajith Kumar⁴, M S Kiran¹, M S Sunita⁵, Nagappa B Gokavi⁶ and Shiva Prasad Kollur⁶

¹ Research Centre, Department of Chemistry, GM Institute of Technology, Davangere, Visvesvaraya Technological University, Belagavi, 590018, Karnataka, India
² Department of Chemistry, R.L. Science Institute, Visvesvaraya Technological University, Belagavi, 590001, Karnataka, India
³ Research Centre, Department of Physics, GM Institute of Technology, Davangere, 577006, Karnataka, India
⁴ Department of Chemistry, Presidency University, Bangalore, 560025, Karnataka, India
⁵ Department of Sciences, Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Mysuru Campus, Mysuru, 570026, Karnataka, India
⁶ Maharaj Soaps Industry Pvt. Ltd, Davangere, 577005, Karnataka, India

E-mail: virupaxb@gmail.com

Received 15 May 2021
Accepted for publication 17 August 2021
Published 12 January 2022



Abstract

The fabrication and diverse applications of mixed oxides have received immense interest due to numerous prospects for better functional performance in tuning their properties compared to the basic metal oxides. Herein, we report synthesis of ZnO–CuO nanocomposites (NCs) using a simple and green route solution combustion method. The as-prepared ZnO–CuO NCs have been characterised through x-ray diffraction (XRD), energy dispersive x-ray (EDX) with scanning electron microscopy (SEM) and transmission electron microscopy (TEM) techniques. The results revealed that as-prepared ZnO–CuO NCs have spherical and rod-shaped structures with an average size between 10 and 30 nm. Further, ZnO–CuO NCs were tested for antidiabetic and anticancer properties. Amylase inhibition and MTT assays were carried out with different concentrations of NCs. The biological results depicted that the as-prepared nanocomposites exhibited significant cytotoxic effects with IC₅₀ value of 13.29 $\mu\text{g mg}^{-1}$. These observations further showed that the newly synthesised ZnO–CuO NCs are interesting and promising nanomaterials in pharmaceutical and healthcare sector.

Keywords: Areca catechu, ZnO–CuO NCs, antidiabetic activity, IC₅₀ value
Classification numbers: 2.00, 2.01, 2.03, 2.05, 2.10

1. Introduction

found to have some significant medicinal applications in



Paper Published @ Scopus International journal

Dr. Swaroop K., Assistant Professor, Dept. of Physics has published a review article in a Scopus indexed journal “**Sensor Review**” (Emerald Publisher) entitled “**A Review: Electrical and Gas Sensing Properties of Polyaniline/Ferrite Nanocomposites**” in collaboration with Presidency University, Davangere University, and Reva University.

The image shows the cover of a review article titled "A review: electrical and gas sensing properties of polyaniline/ferrite nanocomposites" by Swaroop K. The cover includes the journal title "Sensor Review", the author's name, a QR code, and a small portrait of the author. The article is published in Emerald Publishing.

In addition, he has published research article entitled “**Radio iodinated melatonin: Preparation and Purification using Separation Techniques**” in “*Med Pulse International Journal of Physiology*” in collaboration with K S Hedge Medical Academy (NITTE University), Mangalore University, and Board of Radiation and Isotope Technology (BRIT, Mumbai)

Paper Presentation @ International Conference (DAE-SSPS 2021)

Mr. Ganesh Channagoudra (Asst. Professor, Dept. of Physics), presented poster in 65th DAE Solid State Physics Symposium 2021 entitled “Effect of Pyrochlore phase on Magnetic Properties of PMN-PT/LSMO Thin film” organized by Bhabha Atomic Research Centre (BARC) Mumbai from 15th to 19th December -2021.



“Online course on digital Teaching Technique through ICT mode”

Dr. Vinay Parol (Asst. Prof, Dept. of Physics) has been successfully completed one-week short Term program through ICT Mode on “digital Teaching Technique” organized by ICT Academy from 27th December to 31st December 2021.



Sci-Techno Master- A Quiz Contest [National science day]

On the eve of National Science Day-2022, Department of Basic Science conducted *Sci-Techno Master- A Quiz Contest* for all the 1st year BE students on 20th January 2022 to encourage the students to look beyond their textual knowledge and establish a relationship between theory and application of the learnt concepts.

The contest was conducted in Civil Seminar Hall at 3.30pm and was presided by **Dr. Y. Vijaya Kumar (Principal)**, Dr. Onkarappa K. S. (Head- Dept. Basic Science), Dr. G. H. Pujar (Head-Dept of Physics), Dr. Onkarappa H S (Head-Dept. of Chemistry, Basic Science staff and Event Judges: (1) **Dr. Bharath K N**, Associate Professor, Dept. of Mechanical Engineering, (2) **Dr. Pavitra K S**, Asst Prof, Dept of Chemistry.



The contest was hosted by *Smt. Sushma G Katti*. Asst. Prof, Department of Physics, GMIT, Davanagere and this event was coordinated by *Sushma G Katti* (Asst. Prof, Department of Physics), *Shilpa VA* (Asst. Prof, Department of Chemistry), *Mamatha S R* (Asst. Prof, Department of Mathematics) & **Ganesh Channagoudra** (Asst. Prof, Department of Physics).

Quiz Session



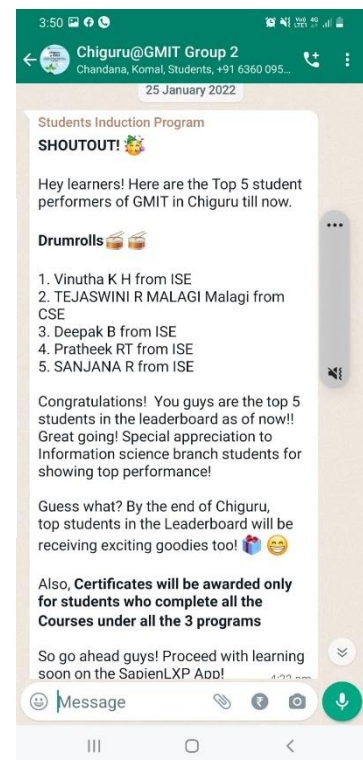
The prize winners of the competition:

- 1st Place: Srinivas B G, Sharath S A, Surya Prakash, Pradeep B S – **G section**
2nd Place: Tejas Habbu, Sushmitha V N, Sagarika U, Tejaswini R M – **B Section**
3rd Place: Chaithanya V, Nayana V J, Gurukiran A M, Gagan B R – **A Section**

Student Centric Activities: First Year BE (January-2022)

Top 5 student performers of GMIT in Chiguru (December & January):

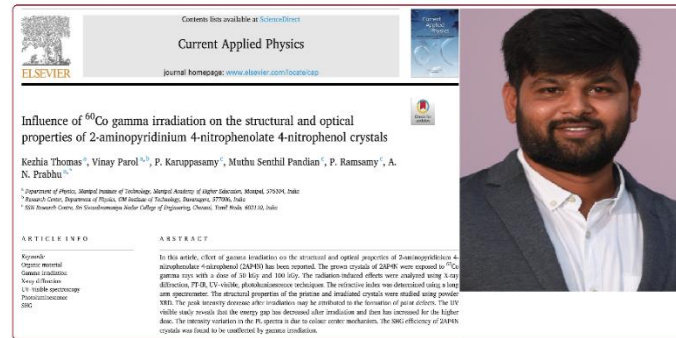
Online Student Induction Program-2022, conducted by govt. of Karnataka



February – 2022

Paper Published @ Scopus International journal

Dr. Vinay Parol, Assistant Professor, Dept. of Physics has published an article in an Scopus /WOS indexed journal **“Current Applied Physics”** (Publisher-Elsevier) entitled **“Influence of ⁶⁰Co gamma irradiation on the structural and optical properties of 2-aminopyridinium 4-nitrophenolate 4-nitrophenol crystals”** in collaboration with Manipal Academy of Higher Education Manipal and SSN College of Engineering, Chennai.



Faculty Development program on shock waves

Dr. Vinay Parol (Asst. Prof, Dept. of Physics) and **Dr. Swaroop K** (Asst. Prof, Dept. of Physics) have been attended the **Faculty development program** on **“Application of shock waves in science, engineering and medicine”** organized by **Department of Physics, Global Academy of Technology Bengaluru** from 8th February to 11th February 2022.



Webinar Participation

Dr. Swaroop K. (Assistant Professor, Dept. of Physics) has participated a webinar on **“Importance of Publishing Open Research in Medicine”** organized by Taylor and Francis Group on 21st February 2022.



Student Centric Activities

Power Point Presentation Competition – (National Science Day-2022)

On the eve of National Science Day-2022, the Department of Basic Science conducted **Power point presentation Competition** for the 1st year BE students on 18th February, 2022 to look

beyond their technical knowledge and establish a relationship between science and application of the learnt concepts.

The event was conducted in Civil Seminar Hall at 2.30 pm and was presided by **Dr. Y. Vijaya Kumar** (Principal), **Dr. Onkarappa K. S.** (Head- Dept. Basic Science), **Dr. G. H. Pujar** (Head-Dept of Physics), **Dr. Onkarappa H S** (Head-Dept. of Chemistry), and Basic Science staff.

Event was Judged by:(i) **Harish G C**, Assistant Professor, Dept of ECE. & (ii) **Keerthi S**, Assistant Professor, Dept of Bio-Technology.

Event coordinators: (i) **Dr. Manjula G M**, (ii) **Savitha K. C**, (iii) **Veena C M** (iv) **Smt. Jyoti Banakar**. Asst. Prof, Department of Mathematics, GMIT, Davanagere.

The prize winners of the competition:

First prize	: Anusha Bhat, Anusha unki, Rinku K	- H section
Second prize	: Meghana B U	- D section
Third prize	: Sharadhi S G, Sushmitha V N, Sai sannidhi	- B section



“Minds on- hands on” -Science Exhibition (National Science Day-2022)

On the occasion of National Science Day, the Department of Basic Science organized the science exhibition (mini-Projects) -Minds On – Hands On 2022 on February 22, 2022 at Engineering Physics Lab.

Students presented various science and technology models with industrial, technological and social relevance, to name few, non-Newtonian fluids for smart road humps, Laser Communication, Reading Devices for Blind People, Electricity Generation through Cow Urine, Plasto-Scopy, Smart Dustbin, Plastic Tiles, Wifi Gun, Smart Street Light and so on.

The event was inaugurated by **Dr. Y. Vijaya Kumar** (Principal) and facilitated by **Dr. Onkarappa K S**, HOD, Dept. of Basic Sciences, **Dr. G H Pujar**, HOD, Dept. of Physics, and **Dr. Onkarappa H S**, HOD, Dept. of Chemistry. All the HOD's, faculty members, and students from various departments have visited the programme actively.

Mr. Mallikarjuna M S., Dept. of Mechanical Engineering and Mr. Ravitheja B., Dept. of Electronics and communication were invited as Judges for the event.

Event Coordinators: (i) **Dr. Swaroop K**, Dept. of Physics,
(ii) **Dr. Vinay Parol**, Dept. of Physics,
(iii) **Dr. Pavithra K C**, Dept. of Chemistry,
(iv) **Dr. Shanmukha B**, Dept. of Mathematics

List of Awardees:

Place	Names	Project Topic
I	Harish Rakode Harshitha and Chinmay R Gajji	Non-Newtonian fluids for smart road humps.
II	Nayana V Niveditha H	Laser Communication.
III	Manasa D Muralidhara L S Malleth N G Nikhil	Generation of Electricity from Cow Urine.
	N S Manikanta R Akash M K Deepak Patil G S Kiran Swamy V M Srujan S	Reading Device for Blind people



Dr. Swaroop K has welcomed the guests and the participants to the programme. **Dr. Y. Vijaya Kumar**, Principal has addressed the participants and encouraged them by going through all the projects. The programme was concluded by **Dr. Vinay Parol**.



March 2022

Parents- Teachers Meeting for First Year B.E Students

The Department of Basic Science, GM Institute of Technology, Davangere, organized the Parents Teachers Meeting for 1st year B.E. students from 25/03/2022 to 31/03/2022 (Section wise). The main objective of the meeting was to create a common platform, where teachers and parents come together to discuss student's performance and devise ways to enrich their learning experience. More than 450 parents were presented, overall and this event was session based (Morning 10:30 -12:30 pm and Afternoon 2:30 to 4:30 pm), which was conducted in civil seminar hall.

This event presided by **Dr. Y. Vijaya Kumar** (Principal), **Tejaswi Kattimani** (Placement Officer), **Dr. Onkarappa K. S.** (Head- Dept. Basic Science), **Dr. G. H. Pujar** (Head-Dept of Physics), **Dr. Onkarappa H S** (Head-Dept. of Chemistry), class teachers, mentors and all Basic Science staff. Further, **Principal** addressed the parents and gave an insight about the institute's facilities and regulations, methodologies of teaching & learning for the overall welfare of students. **Placement officer** highlighted about career opportunities, placements, trainings, higher studies, etc. **Dr. Onkarappa K. S.** spoke about learning techniques and involvement strategies in academics and in addition, **Dr. G. H. Pujar** provided the information about the skill-based educations and extracurricular activities in the college. This event was concluded with the statement, "The progress and development of the students depend on the joint efforts of parents and teachers.



April – 2022

Faculty Development program on Research Methodology- Tools and Techniques”

Dr. Vinay Parol (Asst. Prof, Dept. of Physics) and Dr. Swaroop K (Asst. Prof, Dept. of Physics) have been attended the **Faculty development program** on “**Research Methodology- Tools and Techniques**” organized by **Department of Science and Humanities, Geethahjali Institute of Technical Studies, Udaipur** from 25th to 29th April 2022.



Physics Department felicitated top scorers in Internal Assessment Tests (IAs)

The students who secured the highest marks (out of out in **Engineering Physics**) were felicitated for their achievement. **Miss. Sonica, Sonali, Madiha, Sanjana, Shravani, Mr. Adesh, Jainum, Nirmal Sai Tej and Ismail** have scored highest marks.

All these academic achievers were given small honour to keep their achievement flying. These students were felicitated by Dr. Onkarappa K S, Head-Basic Science, Dr. G H Pujar, Head-Physics and Dr. Santhosh B M, NCC Officer. Principal, Management & and the Staff members had extended their whole-hearted congratulations to all the students for their achievement and wished them all for their future exams to be ever successful!!!!

