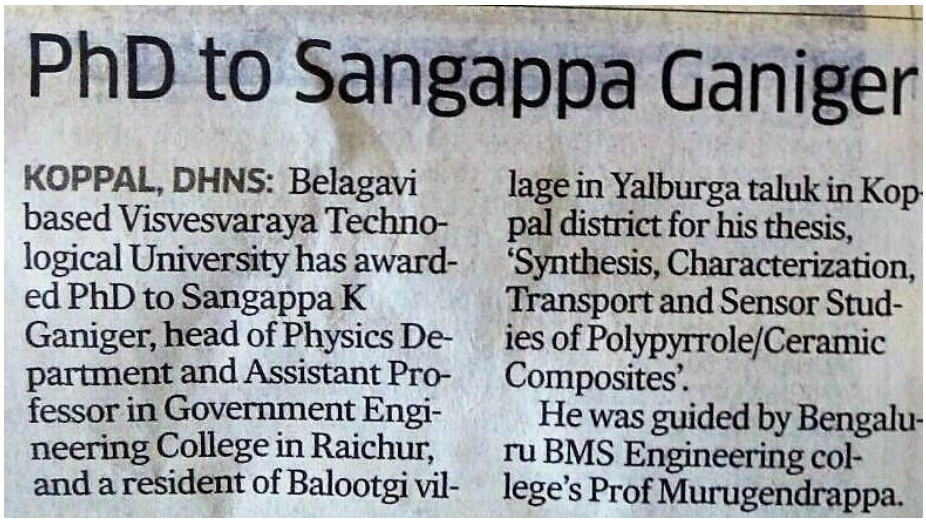
BMS COLLEGE OF ENGINEERING, BENGALURU-19
Autonomous Institute, Affiliated to VTU
Department of Physics, BMSCE, Bangalore-560019

AY 2018 (July 2017- June 2018)

1) Dr. Murugendrappa M.V
HOD & Associate Professor, Dept. of Physics

July 7, 2017: Dr. Sangappa K Ganiger, 1BM11PGN05 was awarded the PhD by the VTU, on the title "Synthesis, Characterization, Transport and Sensor Studies of Polypyrrole/Ceramic Composites" under the guidance of **Dr. Murugendrappa M V**, Associate Professor and Head of the Department of Physics.



PhD to Sangappa Ganiger

KOPPAL, DHNS: Belagavi based Visvesvaraya Technological University has awarded PhD to Sangappa K Ganiger, head of Physics Department and Assistant Professor in Government Engineering College in Raichur, and a resident of Balootgi village in Yalburga taluk in Koppal district for his thesis, 'Synthesis, Characterization, Transport and Sensor Studies of Polypyrrole/Ceramic Composites'.

He was guided by Bengaluru BMS Engineering college's Prof Murugendrappa.

Deccan Herald, 20.07.2017

July 15, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Characterization and Evaluation of Activation Energy for DC Conductivity of Polypyrrole/Nickel Zinc Iron Oxide Nanocomposites" in IOSR Journal of Applied Physics (IOSR-JAP), **UGC approved** Journal with Sl. No. 5010, Journal no. 49054, e-ISSN: 2278-4861.Volume 9, Issue 4 Ver. II, Jul. – Aug. 2017, pp 29-36.

July 28, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was invited as a resource person to deliver a talk in two session's for the FDP on Department of

Physics and Chemistry workshop series – XXXXIII on “Characterization Techniques for the study of Thermoelectric and Optical properties of Materials” at Siddaganga Institute of Technology, Tumkur.

August 01, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled “Structural, dielectric and conductivity studies of $PbFe_{0.5}Nb_{0.5}O_3$ - $BiFeO_3$ multiferroic solid solution” in **Elsevier: Journal of Alloys and Compounds**, http://dx.doi.org/10.1016/j.jallcom.2017.07.126, ISSN: 0925-8388, Volume 724, (July 2017) pp 787 – 798 **(Impact Factor = 3.133).**

August 09, 2017: Department of Physics organized Ph.D. Viva Voce Examination in respect of Mr. Chaluvaraju. B V, 1BM12PGN04, on the title “Synthesis, Characterization, Transport and Sensor Studies of Polypyrrole/Transition Metal Oxide Composites” under the guidance of Dr. Murugendrappa M V, Associate Professor and Head. Dr. Y Sangappa, Professor of Physics, Mangalore University, Mangalore was the External Examiner.

August 08, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "An Experimental and Computational Study of 2-(3-Oxo-3H-benzo[f] chromen-81-ylmethoxy)-Benzoic Acid Methyl Ester" in **Springer: Journal of Solution Chemistry,** doi.org/10.1007/s10953-017-0661-4, Print ISSN: 0095-9782, Online ISSN: 1572-8927 (August 2017) pp 1–21 **(Impact Factor = 1.342).**

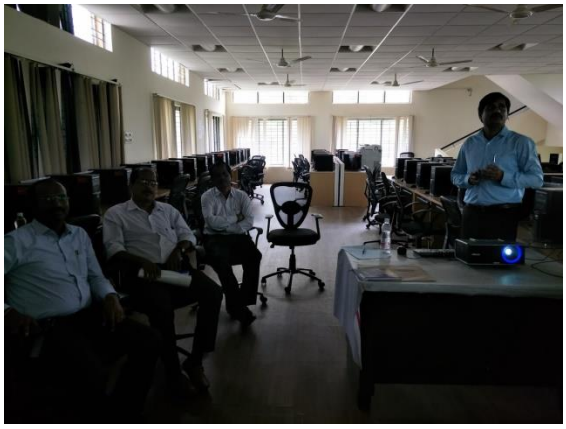
August 30, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was conducted a Comprehensive Viva voce Examination as an external examiner of a Ph.D. student, Mrs. Rajyalakshmi T (1PE10PGN01) at VTU Research Center, PES Institute of Technology, Bengaluru South Campus, Hosur Road, Bengaluru.

September 08, 2017: Department of Physics held audit meeting of SEE question papers, scheme and solutions and answer scripts at COE office with Dr. Avadhani D N, RVCE & Dr. K Fakruddin, GCE, Ramanagara, Dr. Murugendrappa M V, HOD and Prof T Renuka from 10.30 am to 4.00 pm.

September 10, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Impedance spectroscopy studies on $PbFe_{0.5}Nb_{0.5}O_3$ – $BiFeO_3$ multiferroic solid solution" in **Elsevier Journal: Ceramics International**, https://doi.org/10.1016/j.ceramint.2017.09.059, ISSN 0272-8842, (September 2017) **(Impact Factor = 2.986).**

October 03, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was conducted a Comprehensive Viva voce Examination as an external examiner of a Ph.D. student, Mr. Rajashekara T N (1SI13PGN05) at VTU Research Center, Department of Physics, Siddaganga Institute of Technology, Tumkur

October 07, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was conducted a Comprehensive Viva voce Examination as an external examiner of a Ph.D. student, Mr. Santhosh Kumar (1UB13PGN06) at VTU Research Center, Department of Physics, University BDT College, Davangere.



November 13, 2017: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Study of dielectric properties of polypyrrole/titanium dioxide and polypyrrole/titanium dioxide-MWCNT nano composites" in **Springer: Journal of Materials Science: Materials in Electronics**, https://doi.org/10.1007/s10854-017-8214-6, ISSN: 0957-4522, **(Impact Factor = 2.019).**

January 04-06, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics participated in the fifth International Conference on 'Transformations in Engineering Education (ICTIEE-2018)' organized at Bennett University, Greater Noida.

January 13, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics conducted a Comprehensive Viva voce Examination as an external examiner of a Ph.D. student, Mrs. Sahanashree B M (5VX13PGN30) of Department of Physics, S J M Polytechnic (Aided), Chitradurga by VTU.

January 24, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics delivered a special talk on “Synthesis and characterization of conducting polymers for Sensors Applications” at RYM College of Engineering, Bellary on the occasion of lecture series workshop.

ಆರ್‌ವೈಎಂಸಿಕಾಲೇಜಿನಲ್ಲಿ ಉಪನ್ಯಾಸಸರಣಿ

(ನಮ್ಮ ಪ್ರತಿನಿಧಿಯಿಂದ)

ಬಳ್ಳಾರಿ, ಜ.25: ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನ ಶಾಸ್ತ್ರ, ಗಣಿತ ವಿಭಾಗಗಳಿಂದ ರಾವ್ ಬಹಾದ್ದೂರ್ ವೈ.ಮಹಾಬಲೇಶ್ವರಪ್ಪ ಇಂಜಿನಿಯರಿಂಗ್ ಕಾಲೇಜಿನಲ್ಲಿ ವಿಶೇಷ ಉಪನ್ಯಾಸ ಸರಣಿ ಕಾರ್ಯಾಗಾರಗಳ ಉದ್ಘಾಟನಾ ಸಮಾರಂಭ ನಡೆಯಿತು.

ಕಾಲೇಜಿನ ಡಾ. ಕುಪ್ಪಗಲ್ ವಿರೇಶ್ ""ಮುಂಬರುವ ದಿನಗಳಲ್ಲಿ ಭೌತ, ರಾಯನ, ಗಣಿತ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಹೊಸ ತಾಂತ್ರಿಕ ಜ್ಞಾನವು. ಇಲೆಕ್ಟ್ರಾನಿಕ್ ಸಕ್ಯೂಟ್ಸ್, ಪೆಟ್ರೋಲಿಯಂ ಉತ್ಪನ್ನಗಳ ಆಮದಕ್ಕಿಂತ ಮೇಲುಗೈ ಸಾಧಿಸುವ ಸಾಧ್ಯತೆಗಳಿವೆ. ಭೌತ, ರಸಾಯನ, ಗಣಿತ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ತಜ್ಞರುಗಳಿಗೆ ಬೇಡಿಕೆ ಹೆಚ್ಚಲಿದೆ. ಆದಕ್ಕೆ ತಕ್ಕಂತೆ ಲಭ್ಯತೆ ಇರುವುದಿಲ್ಲ. ಅಲ್ಲದೆ ಇಂದಿನ ಸ್ಪರ್ಧಾತ್ಮಕ ಜಗತ್ತಿಗೆ ಅಳವಾದ ತಾಂತ್ರಿಕ ಜ್ಞಾನವುಳ್ಳ ವಿದ್ಯಾರ್ಥಿಗಳು ಅವಶ್ಯಕವಾಗಿದ್ದು ಅವರನ್ನು ತಯಾರಿಸುವಲ್ಲಿ ನಿಮ್ಮ ಪಾತ್ರ ಹೆಚ್ಚಾಗಿರುತ್ತದೆ. ಆಗಲೇ ವಿದ್ಯಾರ್ಥಿಗಳಿಂದ ಹೊಸ ಆವಿಷ್ಕಾರಗಳು ಮಾಡಲು ಅವಕಾಶವಿರುತ್ತದೆ ಎಂದರು.

ಸಂಪನ್ಮೂಲ ವ್ಯಕ್ತಿಗಳಾಗಿ ಬೆಂಗಳೂರಿನ ಬಿ.ಎಂ.ಎಸ್.ಇಂಜಿನೀರಿಂಗ್ ಕಾಲೇಜ್ ನ ಡಾ. ಮುರುಗೇಂದ್ರಪ್ಪ, ಬೆಂಗಳೂರಿನ ಬಿ.ಎಸ್.ಎಮ್.ಎ.ಟ ಇಂಜಿನೀರಿಂಗ್ ಕಾಲೇಜ್ ನ ಡಾ.ಜೆ.ತಿಪ್ಪೇರುದ್ರಪ್ಪ, ಜೋಸಫೇಟ್ ವಿಜಯನಗರ ಕಾಲೇಜ್‌ನ ಡಾ. ಪ್ರಭುಗೌಡ ಪಾಲ್ಗೊಂಡಿದ್ದರು.

ಭೌತ, ರಸಾಯನ, ಗಣಿತ ವಿಭಾಗದ ಮುಖ್ಯಸ್ಥರಾದ ಡಾ. ವೀರಭದ್ರಪ್ಪ, ಡಾ. ನಾಗಭೂಷಣ, ಡಾ. ಸುರೇಶ್ ಬಾಬು ಹಿರೇಮಠ್ ಮತ್ತು ವಿದ್ಯಾರ್ಥಿಗಳು ಭಾಗವಹಿಸಿದ್ದರು.

RYMEC ಗಿ

January 24, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of conducted a research review Committee Meeting as an External expert at RYM College of Engineering, Bellary.

January 24, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled “Studies of thermo-electric power and dielectric modulus of polypyrrole/zirconium oxide-molybdenum trioxide (PZM) composites” in **Springer: Journal of Materials Science: Materials in Electronics**, https://doi.org/10.1007/s10854-018-8640-0 ISSN: 0957-4522, **(Impact Factor = 2.019).**

Journal of Materials Science: Materials in Electronics
https://doi.org/10.1007/s10854-018-8640-0

Studies of thermo-electric power and dielectric modulus of polypyrrole/zirconium oxide-molybdenum trioxide (PZM) composites

R. Harshitha[1] · V. B. Aaditya[2] · B. M. Bharathesh[3] · B.V. Chaluvaraju[1] · U. P. Raghavendra[1] · M.V. Murugendrappa[4,5]

Received: 13 November 2017 / Accepted: 19 January 2018

Abstract
Zirconium oxide-molybdenum trioxide doped polypyrrole composites have been synthesized in the presence of ammonium persulphate (oxidising agent), with different 15, 30, 45 and 60 wt% of zirconium oxide-molybdenum trioxide (ZM) in pyrrole, by the chemical polymerization (oxidation) process. The polypyrrole/zirconium oxide-molybdenum trioxide (PZM) composites have exhibited crystalline nature, which has been confirmed by powder X-ray diffraction patterns. The Fourier transform infrared graphs show that the stretching frequencies of the composites have shifted towards the lower frequency side. The scanning electron microscopy micrographs indicate that the composites are of spherical nature and form elongated chains; an increase in the particles size when compared with polypyrrole and ZM particles is also observed. Thermo electric power and transport properties studies reveal that there is an interaction between polypyrrole and the ZM particles and the weight percents of the ZM particles have an influence on the properties of the pure polypyrrole. Studies shown that, the PZM composites are good materials in conductivity, dielectric properties, micro power generators, thermo cooling, as semiconductors as well as may be in humidity, gas and thermal sensor.

1 Introduction

Developments in science and technology have revealed fresh applications possibilities for conducting polymers and their derivatives. Intrinsically conducting polymers [1–12], by virtue of their light weight and greater ease of fabrication, have replaced and are proceeding to replace metals in several areas of applications. Several conducting polymers have already been prepared for a wide range of applications [13], from rechargeable batteries to microwave absorption [14–16].

Polypyrrole [17] can be synthesized either chemically [18] or by the electro-chemically polymerization technique. Synthesized polypyrrole has a better electrical conductivity [19] rendering its versatility in applications like batteries, electronic devices, functional electrodes, electro-chromic devices, optical switching devices, sensors [20] etc. Conducting polymer based composites have become increasingly important for technical applications such as humidity and gas sensors [21–23] as well as thermo electric power, which might make it an important player in the field of power generation i.e. micro power generators and coolers.

In this article, the authors have studied the thermo-electrical power, dielectric electrical modulus and other transport properties of the zirconium oxide-molybdenum trioxide doped polypyrrole (PZM) composites. These were prepared with the help of the chemical polymerization technique.

The main applications of ZrO_2 are Precision ball valve balls and seats, high density ball and pebble mill grinding media, rollers and guides for metal tube forming, thread and wire guides, hot metal extrusion dies, deep well down-hole valves and seats, powder compacting dies, marine pump seals and shaft guides, oxygen sensors, high temperature induction furnace susceptors, fuel cell membranes, electric

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[1] Department of Physics, Bangalore Institute of Technology, Bangalore, Karnataka 560004, India
[2] Chalmers University of Technology, Gothenburg, Sweden
[3] KTH Royal Institute of Technology, Stockholm, Sweden
[4] Department of Physics, BMS College of Engineering, Bangalore, Karnataka 560019, India
[5] Center of Excellence in Advanced Materials Research, BMS College of Engineering, Bangalore, Karnataka 560019, India

Published online: 24 January 2018

January 27, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of conducted a research review Committee Meeting as an External expert at Reva University, Bengaluru.

February 15th - 17th, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics participated and presented a paper “Synthesis and Impedance Studies of Polypyrrole/Praseodymium Calcium Manganite Oxide Nanocomposites” in the “Conference on Electrochemistry in Advanced Materials, Corrosion and Radiopharmaceuticals” organised by Indian Society for Electro Analytical Chemistry (ISEAC) and Bhabha Atomic Research Centre (BARC) at DAE convention centre, Anushakti Nagar, Mumbai.

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Impedance study of synthesized Cobalt Aluminum Oxide/Polypyrrole Nano-composites" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 2479–2487, ISSN: 2214-7853
https://doi.org/10.1016/j.matpr.2018.01.093

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "A Feasibility Study of Polypyrrole/Zinc Tungstate (Ceramics) Nano Composites for D. C. Conductivity and as a Humidity Sensor" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 2803–2810, ISSN: 2214-7853, https://doi.org/10.1016/j.matpr.2018.01.068

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Experimental studies on a. c. conductivity of the polypyrrole/ash (paddy husk) nano-composites" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 2496–2502, ISSN: 2214-7853
https://doi.org/10.1016/j.matpr.2017.11.031

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Synthesis, characterization and electrical susceptance studies of Polypyrrole/$La_{0.7}Ca_{0.3}MnO_3$ Nano composites" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 3137–3142, ISSN: 2214-7853

https://doi.org/10.1016/j.matpr.2018.01.120

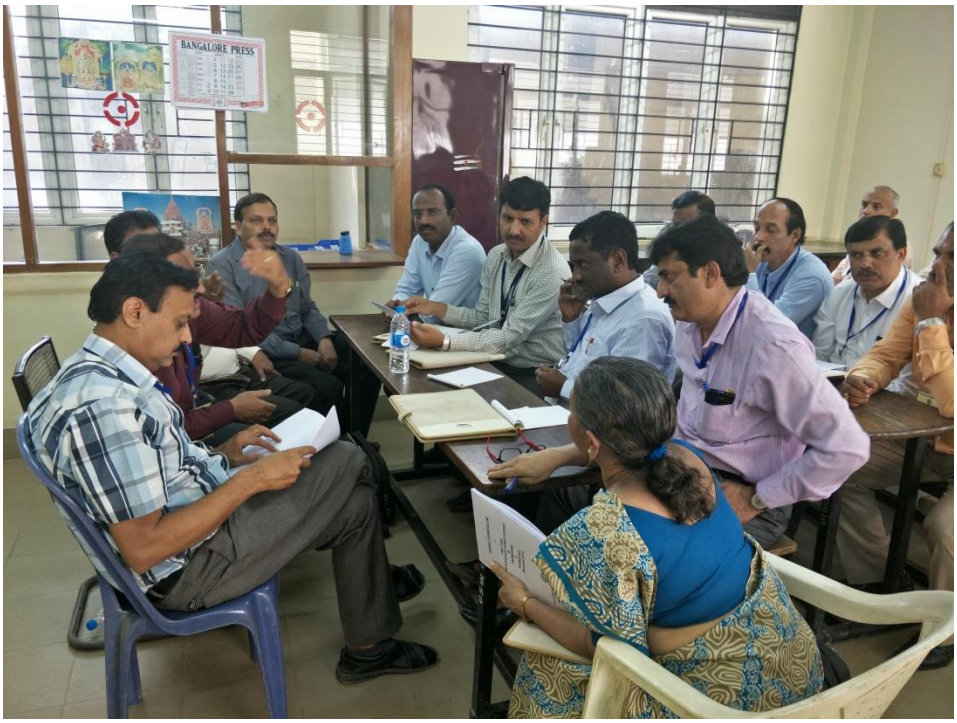
February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Influence of Nickel zinc Iron oxide Nanoparticles on AC Conductivity and Dielectric Properties of Polypyrrole" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 2479–2487, ISSN: 2214-7853
https://doi.org/10.1016/j.matpr.2017.11.029

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Synthesis and Characterization of Polypyrrole/ Praseodymium Calcium Manganite Oxide Nanocomposites" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 2818–2823, ISSN: 2214-7853
https://doi.org/10.1016/j.matpr.2018.01.070

February 22nd , 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was published a paper entitled "Synthesis, Characterization Studies of Polypyrrole/Strontium Titanate (Nano Ceramic) Composites" in **Elsevier: Materials Today: Proceedings** Volume 5, Issue 1, Part 3, 2018, Pages 3158–3164, ISSN: 2214-7853
https://doi.org/10.1016/j.matpr.2018.01.123

February 28th, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was invited as judge for the inter college lecture contest for degree students on the occasion of Nation Science Day organized by BMS College for Women, Bengaluru.

March 12th, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of Physics was invited as a member for the discussion on VTU curriculum design as per AICTE norms organized by BMS College Engineering, Bengaluru.



March 16th, 2018: Dr. Murugendrappa M V, Associate Professor and Head and Dr. Pranesha, Professor, Department of Physics were invited as experts for the syllabus discussion of VTU curriculum as per AICTE norms organized by Bangalore Institute of Technology, Bengaluru.

May 07, 2018: Dr. Murugendrappa M V, Asso Professor & HOD, Dr. T S Pranesha, Professor, Prof. T Renuka, Prof. K Ravishankar Asso Professor in the department of Physics attended a one day workshop on New Model Curriculum First Year BE-CBCS Detailed Syllabus (2018-19) as per Outcomes-Based Education (OBE) format including Course Outcomes (CO) and Bloom's Taxonomy conducted by Visvesvaraya Technological University (VTU) Belagavi held on 07.05.2018 at BIT, Bangalore.

June 13th, 2018: Dr. Murugendrappa M V, Associate Professor and Head, Department of physics was invited as an external member for Board of Studies meeting at Dr .AIT, Bengaluru

2) Dr. T.S Pranesha

Professor, Dept. of Physics

September 07, 2017: Dr. Pranesha T S, Professor, Department of Physics has given an invited lecture on the topic “Quantum computation – An introduction” at Dayananda sagar college of Engineering.

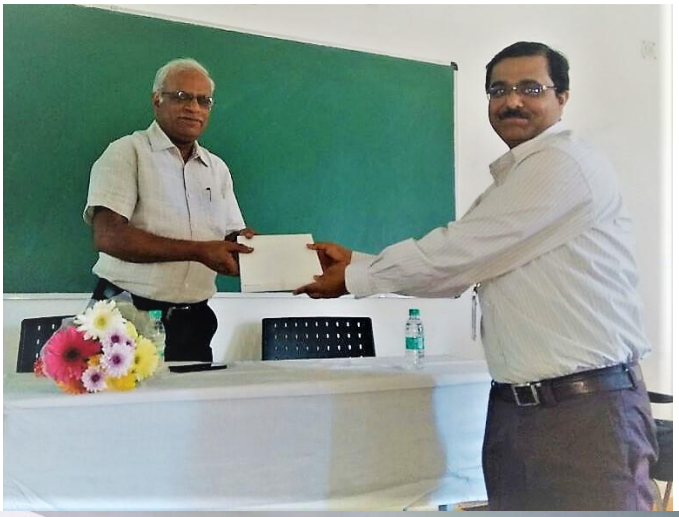
October 12, 2017: Dr. T.S Pranesha, Professor, Department of Physics gave a talk at the event Prathibha Parva organised by BMSCE Kannada Sangha 'Chirantana'.

October 16, 2017: Dr. T.S Pranesha, Professor, Department of Physics gave a talk on the Topic “Planetary Electricity and Lightning” arranged by BMS Student’s Astronomical Society-Alternate Universe and Department of Physics, BMSCE, Bengaluru at PG Block, 6th Floor, Room No EE 6003, BMSCE.

October 28th, 2017: Dr. T.S Pranesha, Professor, Department of Physics gave a talk as a resource person in the workshop "Effect of Environment on Climate and Role of Civil Engineers" organized by Department of civil engineering, REVA University.

January 31, 2018: Dr. T S Pranesha, Professor, Department of Physics was invited as an external member for audit of CIE and SEE question papers in Physics at Dayananda Sagar College of Engineering, Bengaluru.

March 2nd, 2018: Dr. T.S Pranesha, Professor, Department of Physics was invited to deliver a key note lecture as a part of Reva Research Conclave at REVA University, Bengaluru.



March 6th, 2018: Dr. T.S Pranesha, Professor, Department of Physics was invited as an external member on the faculty recruitment panel at Presidency University, Bengaluru.

May 26th, 2018: Dr. T.S Pranesha, Professor, Department of Physics was invited as an expert member for Board of Studies meeting at Presidency University, Bengaluru.

June 06th, 2018: Dr. T.S Pranesha, Professor, Department of Physics was invited as a member for Board of Studies meeting at SIT, Tumkuru.

June 13th, 2018: Dr. T.S Pranesha, Professor, Department of Physics was invited as a member of Faculty selection committee by PESIT,South Campus.

3).Prof. T.Reuka

Associate Professor, Dept. of Physics

July 13, 2017: Prof. T. Renuka of Physics department was invited for an Interaction session with the teachers of Vidhyadaan School, Shivapura, Doddaballapur, wherein she addressed the teachers on the topic "Pedagogy in Physics".

September 08, 2017: Department of Physics held audit meeting of SEE question papers, scheme and solutions and answer scripts at COE office with Dr. Avadhani D N, RVCE & Dr. K Fakruddin, GCE, Ramanagara, Dr. Murugendrappa M V, HOD and Prof T Renuka from 10.30 am to 4.00 pm.

September 22, 2017: TEACHERS' DAY program at 3 PM in the Indoor Stadium of the College. During the function, the college felicitated and honored to the Department of Physics faculties Prof. T Renuka, Prof. K Ravishankar & Prof C. Chitra & staff member Sri. Venkatesh who have completed 25 years of service in this college.

October 25th & 26th, 2017: Prof. T. Renuka, Associate Professor, Department of Physics Participated and Presented a Paper on "Open data Usage by Undergraduate Students" in IEEE

international conference on MOOCS Innovation and Technology in Education – MITE 2017 at BMS College of Engineering.

4) Prof. K.Ravishankar

Associate Professor, Dept. of Physics

July 17th to 28th, 2017: Prof K. Ravishankar of Physics department attended the Faculty Development Programme organized by Department of Mechanical, Civil, Electrical & Electronics Engineering on the topic "Advances in finite element methods and Applications" held at BMSCE, Bengaluru.

August 10 to 11, 2017: Prof. K. Ravishankar, Associate Professor, Department of Physics was participated in the conference "Indian Technology Congress" held at NIMHANS Convention Centre, Bengaluru, India.

September 22, 2017: TEACHERS' DAY program at 3 PM in the Indoor Stadium of the College. During the function, the college felicitated and honored to the Department of Physics faculties Prof. T Renuka, Prof. K Ravishankar & Prof C. Chitra & staff member Sri. Venkatesh who have completed 25 years of service in this college.

December 05th, 06th, 07th, 2017: Prof K Ravi Shankar attended the Practical examinations as an External Examiner at Dr. Ambedkar Institute of Technology, Bangalore.

5) Dr. B.L Suresha

Asst. Professor, Dept. of Physics

July 17th to 28th, 2017: Dr. B.L Suresha of Physics department attended the Faculty Development Programme organized by Department of Mechanical, Civil, Electrical & Electronics Engineering on the topic "Advances in finite element methods and Applications" held at BMSCE, Bengaluru.

September 21-25, 2017: Dr. B L Suresha, Assistant Professor of the department attended a workshop for "Faculty-mentors on induction programme for new students" conducted by Harcourt Butler Technical University, Kanpur.

October 30th, 2017: Dr. B.L Suresha, Assistant Professor, Department of Physics Participated in workshop for Academia on "CDIO Approach to Engineering Education" at BMS College of Engineering.

November 28-29, 2017: Dr. B L Suresha, Assistant Professor, Department of Physics presented a research paper entitled "Experimental Studies on role of pH, potential and concentration of

buffer solution for chemical bath deposition technique" in the IMMT 2017: International Conference on Recent advances in Materials and manufacturing technologies at Birla Institute of Technology & Science, Pilani, Dubai Campus, Dubai, UAE.

January 31, 2018: The Department Astronomy club known as Alternate universe BMSCE conducted a sky watching session on the occasion of total lunar eclipse and Super blue moon at 5.30 pm in the class room block terrace.

February 14th, 2018: Dr. B L Suresha, Assistant Professor and Dr. Latha Kumari, Assistant Professor, Department of Physics were recognized as best coordinators for student feedback process by the Dean Student affairs and honoured at FDC Hall.

March 15th, 2018: Dr. B. L Suresha, Asst. Professor, Department of Physics attended a FDP organised by Dept. of Chemical Engineering on "Process simulation using Unisim Design Software" in MESH, BMSCE, Bengaluru.

May 04, 2018: Dr. Suresha B.L, Asst Professor and Head, Department of Physics was published a paper entitled "Experimental Studies on role of pH, potential and concentration of buffer solution for chemical bath deposition technique" in **Springer: Journal of Materials Science: Materials in Electronics**, https://doi.org/10.1007/s10854-018-8640-0 ISSN: 0957-4522, **(Impact Factor = 2.019).**

IMMT 2017 IOP Publishing
IOP Conf. Series: Materials Science and Engineering 346 (2018) 012033 doi:10.1088/1757-899X/346/1/012033

Experimental Studies on role of pH, potential and concentration of buffer solution for chemical bath deposition technique

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Abstract. The ionization potential is usually found to be less in acid and more in base. The experiment proves that the ionization potential increases on dilution of acid to base and reduces from base to acid. The potential can be tailored according to the desired properties based on our choice of acid or base. The experimental study establishes a direct relationship between pH and electric potential. This work provides theoretical insights on the need for a basic media of pH 10 in chemical thin film growth techniques called Chemical Bath Deposition Techniques.

Key words: pH, ionization potential, chemical bath deposition.
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1. Introduction:

The basic purpose of this study is to understand and build a relationship between pH, concentration and potential energy of an electrolytic solution. It was reported that there is a linear relationship with adsorption of Ni (II) on oxidized carbon nanotubes and increases with increasing pH [1] Electrochemical methods are increasingly being used for the preparation of thin films and coatings which is our area of interest to explore the relationship between concentration, pH and potential [2]. It is suggested that the deposition efficiency is dependent on pH, which in turn depends on the rate of base generation in cathodic reactions and an increase in pH decreases the charge of polyethylenimine (PEI), [3]. According to the Derjaguin-Landau-Verwey- Overbeek (DLVO) theory, colloidal stability is closely related to the potential of the colloidal particles, potential is positive for low pH values and negative at high pH [4,5]. The formation of anionic species ranges in between 3 and 9 [6]. In the case of Cu^{2+} reduction in the presence of Cl an anion-bridged activated complex of the Cu/Cl/Cu type has been postulated [7]. Almost no adsorption of copper ions took place on Magnetic Nano Particle (MNP) and Gum-Arabic coated MNP (GA-MNP) when pH < 2, probably due to the significant competitive adsorption of hydrogen ions and at pH 2-6, the adsorption capacities increased with the increase in pH there by choice of acidic medium has to be pH>2 for good adsorption. [8]. Many researchers have verified that the pH of the medium has significant influence on the

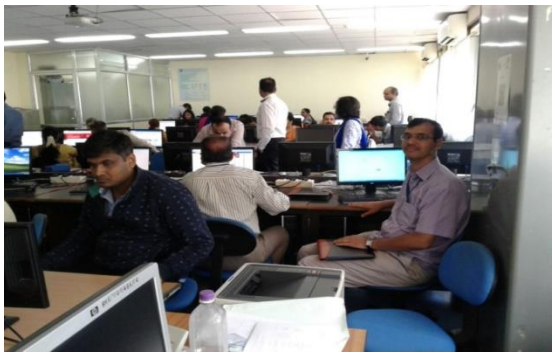
6) Dr. K.E Ganesh

Asst. Professor, Dept. of Physics

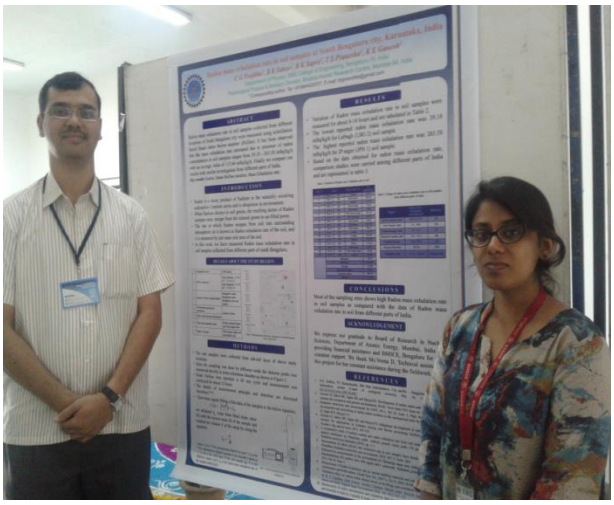
August 08, 2017: Dr. K. E Ganesh, Assistant Professor, Department of Physics was conducted a Comprehensive Viva voce Examination as an external examiner of a Ph.D. student at VTU Research Center, RNS Institute of Technology, Bengaluru.

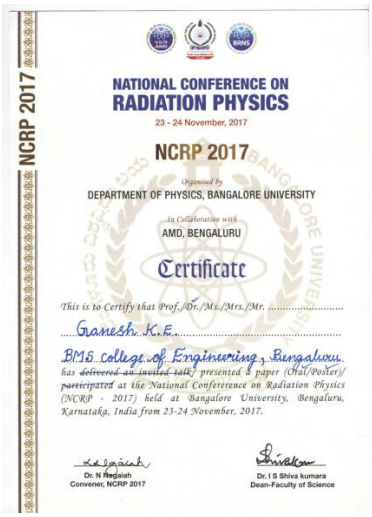
May 04, 2018: Dr. K E Ganesh, Assistant Professor in the department of Physics attended "Technical Programme Discussion Meeting" held on 04.05.2018 at BARC, Mumbai.

October 29th, 2017: Dr. K.E Ganesh, Assistant Professor, Department of Physics Participated in workshop for Academia on "MOOCS life cycle and hands on MOOCS Development" at BMS College of Engineering.



November 23-24, 2017: Dr. K E Ganesh, Assistant Professor, Department of Physics presented two research papers in National Conference on Radiation Physics (NCRP-2017) held at Physics Department of Bangalore University Jnanabharathi Campus, Bengaluru.





NCRP 2017

NATIONAL CONFERENCE ON
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AMD, BENGALURU

Certificate

This is to Certify that Prof./Dr./Ms./Mrs./Mr. .....
Ganesh. K.E.
BMS college of Engineering, Bengaluru.
has ~~delivered an invited talk/~~ presented a paper (Oral/Poster)/ ~~participated~~ at the National Conference on Radiation Physics (NCRP - 2017) held at Bangalore University, Bengaluru, Karnataka, India from 23-24 November, 2017.

Dr. N Nagaiah
Convener, NCRP 2017

Dr. I S Shiva kumara
Dean-Faculty of Science

June 11th, 2018: Dr. K.E Ganesh, Assistant Professor, Department of Physics published a National journal paper entitled "A STUDY ON LONG TERM VARIATION IN PARTICULATE MATTER AND BLACK CARBON AEROSOL OPTICAL THICKNESS OVER MYSURU, INDIA : A SATELLITE DATA APPROACH" in MAUSAM Journal vol. 69, issue 2 (April 2018), page no. 331-334, 551.510.42 : 551.501.86 (540.61)

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A STUDY ON LONG TERM VARIATION IN PARTICULATE MATTER AND BLACK CARBON AEROSOL OPTICAL THICKNESS OVER MYSURU, INDIA : A SATELLITE DATA APPROACH

1. Aerosol Optical Thickness (AOT) is a measure of solar spectral extinction. Long term AOT data analysis gives a picture of air quality for that location. This type of analysis is useful in the study of impact of urbanization on local climate. Aerosols are one of the most important but poorly understood factors that influence global climate change (IPCC, 2001). This calls for a need to regularly monitor the global aerosol distributions and study how they are changing over time. From this one can find out the possible trend in their changing patterns over the years and what effect they will ultimately have on the global climate (Tom *et al.*, 2008).The population density in fast growing cities and the related human activities (*e.g.*, construction, transportation, energy generation, industrial production, etc.) pose serious challenge to the ecological environment (Glasow von *et al.*, 2013 and Sekovski *et al.*, 2012). For example, air and water pollutions associated with human activities have become one of the most forthcoming environmental issues of fast growing cities in recent decades (Kanakidou *et al.*, 2011), especially in the developing countries where limited resources are available for addressing the pollution issues. Mysuru (12° 19′ N and 76° 39′ E) being one of the fast growing cities in Karnataka State of India needs attention in monitoring air quality on regular basis because of its increased urbanization. Possessing long-term ground based data is a difficult task. However, usage of satellite data can provide almost accurate long term data for any location. In the present study an attempt has been made to analyze a ten year AOT data at 550 nm wavelength for the south Indian location Mysuru, Karnataka collected from NASA's Giovanni site and the results of the study have been discussed in this paper.

2. Mysuru is a tropical (12° 19′ N and 76° 39′ E) continental station in the Indian subcontinent with amean height of about 767 m above mean sea level. It is situated on the Deccan plateau of peninsular India (Fig. 1). Arabian Sea is at a distance of 200 km on the west, Bay of Bengal 400 km away on the east and the Indian Ocean is about 500 km away in the south. The annual mean daily temperatures are 30 °C maximum and 19 °C minimum.

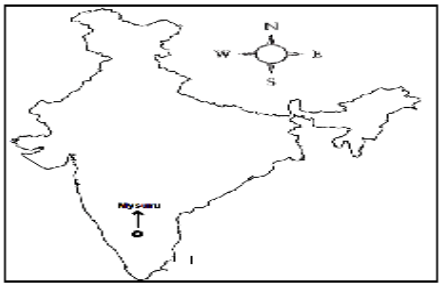

Fig. 1. Geographic identity of Mysuru

Mysuru records about760 mm rain a year, major portion of which is received during monsoon. Winter gets either little rain or no rain. The summer rains are limited to a few days (Ganesh *et al.*, 2010).

3. Satellite data for solar extinction due to dust particles (AOT) and Black Carbon (AOT-BC) at 550 nm have been collected from the Giovanni site developed by NASA. Giovanni is a short form for the Goddard Earth Sciences Data and Information Services Center (GES DISC) Interactive Online Visualization and analysis Infrastructure. It is a Web-based application developed by the NASA GES DISC and it is easy to use. There's no need to learn data formats, programming, or to download large amounts of data. We will get customized data analyses and visualizations with ease. Visualization of AOT plot on time scale graph have been generated for the location Mysuru for each year from 2006 to 2015. From the graph average AOT and AOT-BC at 550 nm are being worked out for every month of each year (http://giovanni.gsfc.nasa.gov/giovanni/).

4. Analysis of AOT satellite data at 550 nm for ten years (2006-2015) for the location Mysuru, Karnataka, India has resulted in some useful information regarding the air quality at that location. First of all when we consider the monthly variation of AOT, no

7) **Dr. Latakumari**

Asst. Professor, Dept. of Physics

March 17th, 2018: Dr. Latha Kumari, Asst. Professor, Department of Physics attended the VGST Grant program Co-ordinators Interaction Meeting held at Jawaharlal Nehru Centre for Advanced scientific Research (JNCASR), Jakkur, Bengaluru.