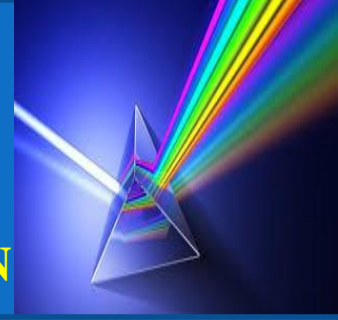


# Propagation



Newsletter

Department of Physics @ CUTN



**Published by**

Department of Physics  
Central University of  
Tamil Nadu,  
Neelakudi,  
Thiruvarur - 610 005



**Decennial  
Special Issue**

**July 2019 to June 2020**

**Volume: 01 Issue : 01**

**Editor : Prof. Dr. L. Kavitha**



# Faculty Team

## Head of the Department

**Prof. Dr. L. Kavitha**

## Professors

**Prof. Dr. P. Ravindran  
Prof. Dr. V. Madhurima  
Prof. Dr. L. Kavitha**

## Assistant Professors

**Dr. M. Ponmurugan  
Dr. R. Arun  
Dr. Venkata Saravanan**

## UGC-Asst. Professor

**Dr. K. C. Shekhar**

## DST- INSPIRE Faculty

**Dr. I. Panneer Muthuselvam**

## Contract Faculty

**Dr. S. Sathish  
Dr. D. Aravinthan  
Dr. B. Shanmugavelu  
Dr. S. Nallamuthu**

**Dr. M. Anil Kumar  
Dr. O. Prakash  
Dr. G. Kurumurthy**

## Technical & Administrative Staff

**Mr. A. Sulthan Ibrahim  
Mr. R. Dhanaraj  
Mr. M. Lakshmana Prabhu**

**Mr. Thirumeninathan  
Ms. Karthika  
Mr. A. Vasudhevan**



2019-20

2019-20

# AREAS OF RESEARCH

**Integrated MSc  
Students  
117**

**Research  
Scholars  
36**

**Seminars  
Organized  
17**

- ❖ **Computational Condensed Matter Physics**
- ❖ **Interfacial and wetting studies,  
Experimental soft condensed matter  
Physics,**
- ❖ **Nonlinear Dynamics,**
- ❖ **Quantum Interference in Spontaneous  
emission,**
- ❖ **Concentrated Solar Energy,**
- ❖ **Materials for Energy Harvesting,**
- ❖ **Functional nanomaterials;**
- ❖ **Ferroelectric Photovoltaics; thin film;  
Plasmonics,**
- ❖ **Magnetism material and super  
conductivity**

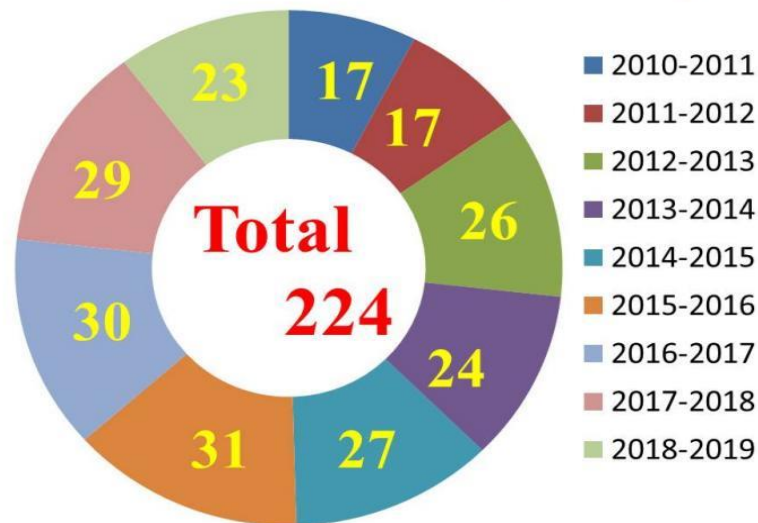
**Total Project  
Funds  
Generated  
Rs. 668.95214  
Lakhs**

**Total  
Publications  
700**

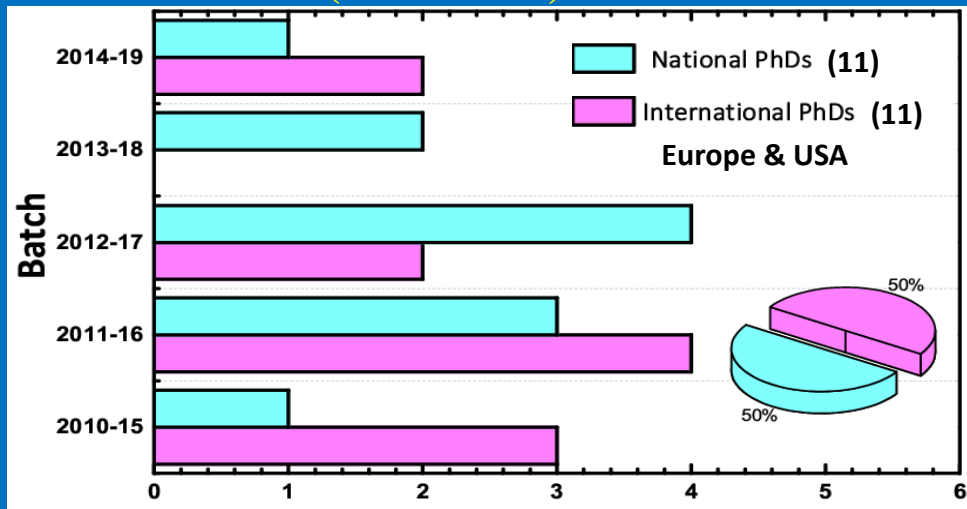
## The glory of our Alumini

The students who graduated from the department after completion of their Masters, most of them have enrolled for PhD in reputed research institutes in India and across the globe such as IISC, Wisconsin University USA, etc. A few of them are continuing their PhD with faculty in the department.

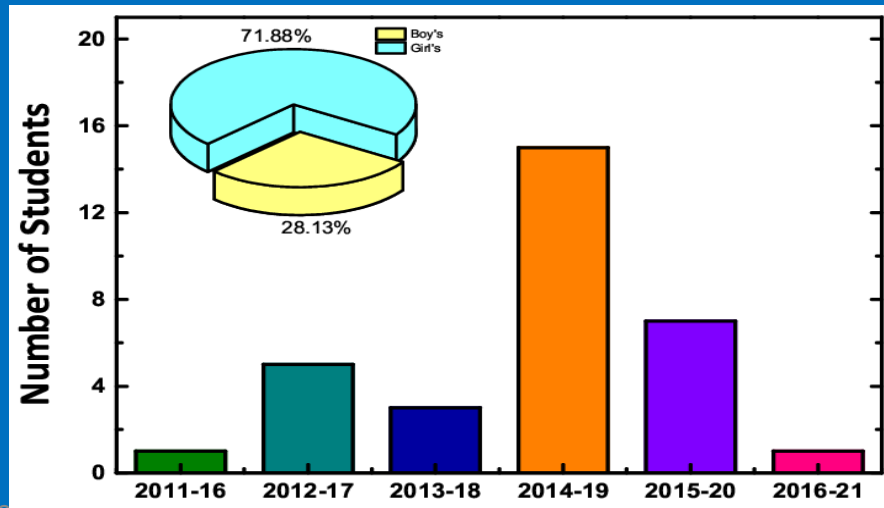
### Total Students Enrollment (2010-2019)



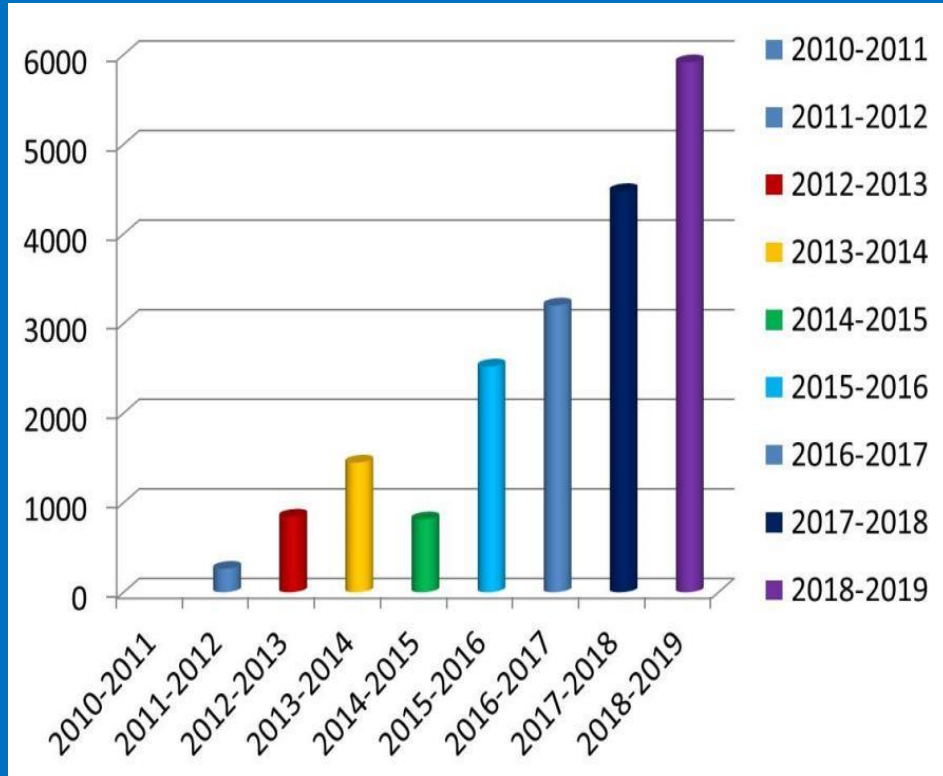
### Number of our IMSc students pursuing Ph.D (2010-2019)



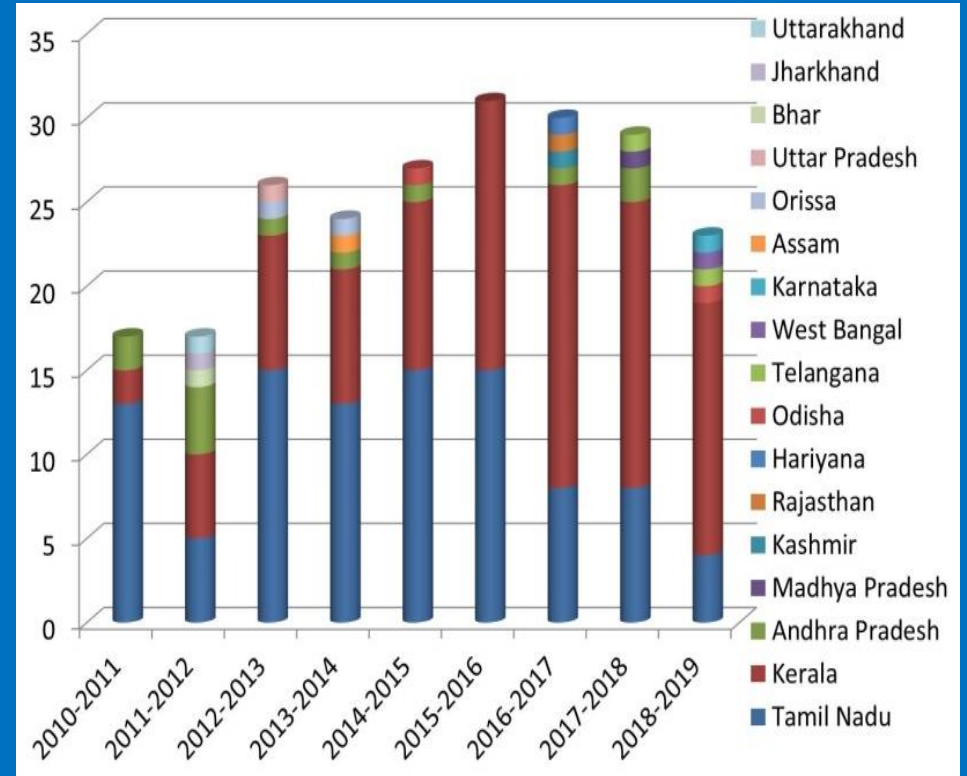
### Participation of our students in various National/International internship (2011-2019)



The number of applications received for Integrated Master's program is exponentially increasing every year despite we admit 30 each year, as shown below.



Applications received each year for IM.Sc course in Physics

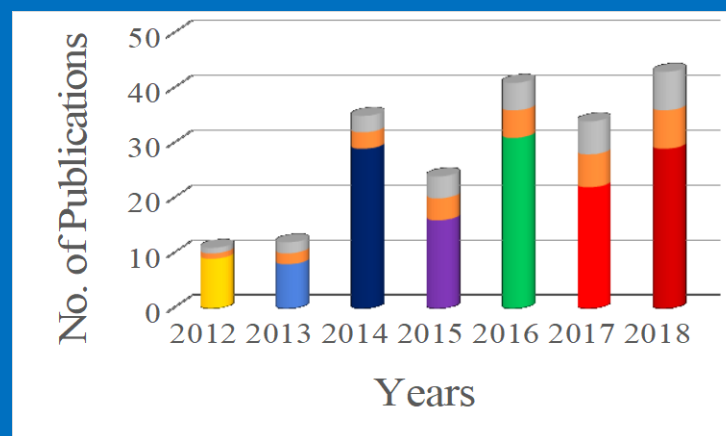
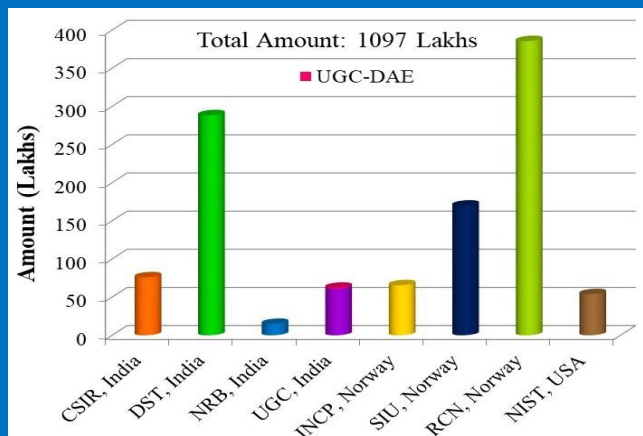


Demography of I M.Sc. students in Physics (2010-19)



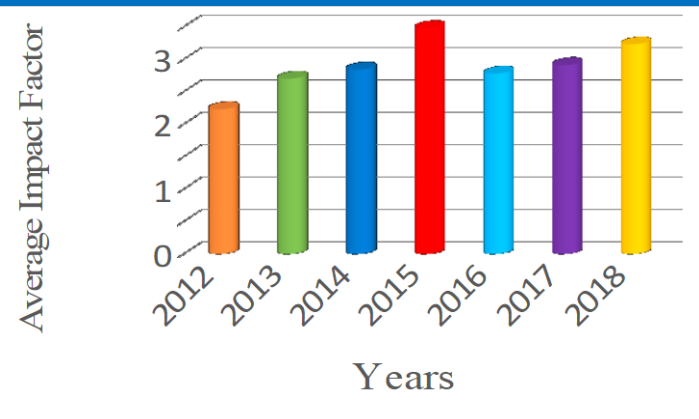
The Faculty members of the department have published 153 articles with CUTN affiliation in the journals of high international repute and the credentials of the department publications are as follows:

<b>Cumulative Impact factor</b>	<b>308.5</b>
<b>Total number of Publications</b>	<b>153</b>
<b>Department h-index (CUTN affiliation)</b>	<b>17</b>
<b>Average impact factor</b>	<b>2.88</b>

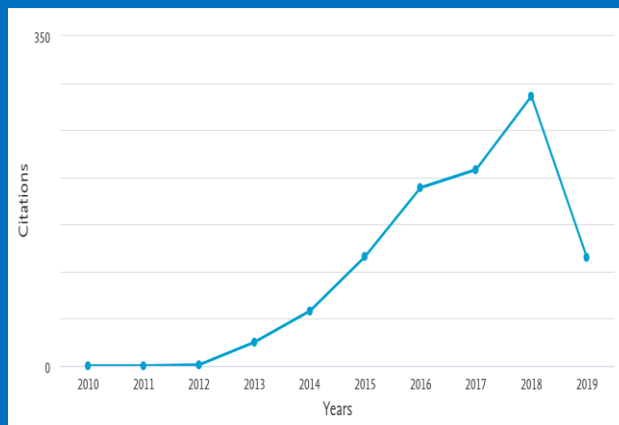


**Research projects (2009-2019)**

**Number of publications (2012-2018)**



**Average impact factor (2012-2018)**



**Year wise citations (Source: Scopus) (2010-2019)**

The faculties of the department have mobilized research grant to tune of 10 crores from various national and international funding agencies such as, CSIR - Council of Scientific & Industrial Research, DAE - Department of Atomic Energy, DST - Department of Science and Technology, NRB - Naval Research Board, UGC - University Grants Commission, INCP - Indo-Norwegian Cooperation Program, India & Norway, SIU - Norwegian Centre for International Cooperation in Education, Norway, RCN - Research Council of Norway, Norway, NIST - National Institute of Standards and Technology, USA.



## Department Instruments



Seeback Coefficient SBA458-Value-34lac

High Temperature Tube Furnace-10lac

Potentiostat/Galvanostat-25lac

Contact Angle gonio meter



Vector network analyser

Zeta seizer  
Newsletter-Propagation

FT-IR with ATR Attachment(Perkin Elmer – Spectrum 2)



### Area of Research

**Computational Condensed  
Matter Physics**

### Project Funds Sanctioned

**DST-SERB:** ₹. 19,20,000

**CSIR-EMRII:** ₹. 14, 87, 667

**SIU- Norway :** NOK 19,99,540

**RCN-Norway:** NOK 34,38,000

**RCN-Norway:** NOK 1,61,863

1. Sreedevi, P. D., P. Ravindran, and R. Vidya. "First principles prediction of the ground state crystal structures of antiperovskite compounds  $A_3PN$  ( $A = \text{Be, Mg, Ca, Sr, Ba}$  and  $\text{Zn}$ )." *Materials Today: Proceedings* 8 (2019): 294-300.
2. Augustine, Anu Maria, and P. Ravindran. "Role of W-site substitution on mechanical and electronic properties of cubic tungsten carbide." *Journal of Physics: Condensed Matter* 32.14 (2020): 145701.
3. Choudhary, Mukesh K., and P. Ravindran. "Thermal, electronic and thermoelectric properties of  $\text{TiNiSn}$  and  $\text{TiCoSb}$  based quaternary half Heusler alloys obtained from ab initio calculations." *Sustainable Energy & Fuels* 4.2 (2020): 895-910.

### **Conferences/Seminars/Workshops/ organized:**

1. Indo-Norway workshop on Advanced Functional Materials for Energy Technology, conducted on 23-24 September 2019 at Central University of Tamil Nadu, Thiruvarur. 1



**Prof. Dr. P.  
Ravindran  
Professor  
& Head  
SCANMAT Centre**

**Ph.D Students  
Guidance**

Completed : 03

On-going : 06

**Total Publications : 235**

**Citations : 8162**

**H-Index : 44**





### **Publications in Conference Proceeding**

1. PD Sreedevi, R. Vidya, and P. Ravindran, Earth-abundant nontoxic direct band gap semiconductors for photovoltaic applications by ab-initio simulations, *Solar Energy* 190, 350-360 (2019)
2. Anu Maria Augustine, and P. Ravindran. "Role of W-site substitution on mechanical and electronic properties of cubic tungsten carbide." *Journal of Physics: Condensed Matter* 32.14 (2020): 145701.
3. Mukesh K Choudhary and P. Ravindran. "Thermal, electronic and thermoelectric properties of TiNiSn and TiCoSb based quaternary half Heusler alloys obtained from ab initio calculations". *Sustainable Energy & Fuels* 2020,4, 895-910

### **Paper Presentation**

1. Suresh R, Prof. P. Ravindran, Asian Consortium on Computational Materials Science – International Conference on Material Genome 2020 (ACCMS-ICMG 2020), 05-07th February, SRM University, Amaravathi, AP
2. Kruthika Ganeshan, Prof. P. Ravindran, Asian Consortium on Computational Materials Science - International Conference on Material Genome 2020 (ACCMS-ICMG 2020), 05-07th February, SRM University, Amaravathi, AP



## Project Details

Sl. No.	Title of the project and duration	Amount sanctioned (INR)	Period	Funding Agency
<b>Prof. P. Ravindran</b>				
1	“Ab initio first-principles modeling of actinide-chalcogenide solid state chemistry: Insights into electronic structure, bonding, magnetism, lattice dynamics, catalytic activity, and optical properties”	19.2 L	Aug10/2017 to Aug10/2019 (on-going)	DST-SERB
2	Developing materials for High Efficiency Silicon-Hybrid Perovskite Tandem solar cells.	1487667	3 years (2018-2020)	CSIR-EMRII
3	Functional Materials for Solar Cells.	-	3 years (2019-2021)	UGC-DSKPDF
4	Theoretical and Experimental Study and Research on Functional Materials (TESFun)	1999540 NOK	2018 to 2021 (Ongoing)	Senter for Internasjonalisering av Utdanning (SIU) Norway
5	India - Norway partnership for research and education in materials for energy and environment (INTPART)	3438000 NOK	2018 to 2021 (Ongoing)	Research Council of Norway
6	Novel Approaches to Magnetostructural phase transitions in Metallic systems (NAMM)	161863 NOK	2019 to 2023 (Ongoing)	Research Council of Norway (RCN)



### Conference – Special/Invited Talk

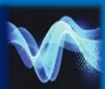
1. Prof. P. Ravindran, Two Days Indo Norway Workshop on Functional Materials for Energy Technology (FMET – 2019), Seminar Hall Central Library, CUTN, 23<sup>rd</sup> and 24<sup>th</sup> September 2019.
2. Prof. Ravindran, Nanomaterials Driven Advances in Chemical and Biosensors (Nanose 2019) @ Alagappa University (India), November 27<sup>th</sup> to 29<sup>th</sup> 2019

### Details of Collaboration:

1. University of Oslo, Anna University, Jawaharlal Nehru Centre for Advanced Scientific Research,
2. KTH Royal Institute of Technology which is Sweden's largest technical university.
3. Our young alumni is established the collaboration with various institutes (Ashwin Kishore (Upsala University, Sweeden), Lokanath Patra (Michigan Technological University, USA), VivekChristhunathan (National University of Ireland, Ireland) etc.) from department of physics.

### Membership in Committees:

1. 11th and 12th standard SERT book reviewing as expert member, Member of the board of study at Department of Materials Science, Madurai Kamaraj University.



### Area of Research

**Computational Studies of  
Molecular Interactions &  
Soft Matter Physics**

1. K. Nilavarasi, Ramkumar Santhanagopal, V. Madhurima, 1D roughness driven depinning of self-assembly of liquid droplets, Langmuir, (2019),35, 45, 14576-14585

### Chapters in Edited Volumes

- ❖ P. Sri Harsha, K. Venkata Saravanan, and V. Madhurima, High- $\kappa$  Dielectric Materials: Structural Properties and Selection, Apple Academic Press and CRC Press, Taylor and Francis, Ed/; N P Maity, R Maity and S Baishya, ISBN hard: 978-1-77188-843-1. Cat#: K441127, ISBN ebook: 9780429325779. Cat#: KF13057, 278 pages.

### Conferences/Seminars/Workshops / Training Programs organized

- ❖ DAE – C.V Raman Lecture on “Room Temperature Superconductors: Ephemeral Elusive to Stable Ones” - 03.12.2019.
- ❖ IUCAA School on Introductory Astronomy at CUTN was organized during January 4-10 2020.

**Total Publications : 51  
Citations : 310  
H-Index : 11**



**Prof. Dr. V.  
Madhurima  
Professor**

**Ph.D Students Guidance  
Completed : 01  
On-going : 03**



## Invited Talk/Invited lecture / Chief Guest

1. Talk at AMET on MOOCs at their IQAC programme – 26th November 2019
2. Talk at SHASTRA university on National Science Day, 26th February, 2020
3. Women in science exhibition, science day celebration, CUTN - 28th Feb 2020.
4. Fracmeet-2020 symposium in the ACCMS-ICMG conference at SRM-AP during 5-7 February, 2020.
5. Aswini Harindran and V Madhurima, Influence of fat content on adhesion of commercial milk to smooth and constrained surfaces, Pressing for Progress, University of Hyderabad, 19-21 September 2019
6. V Madhurima Best poster award, Women in Physics at CUTN- a case study, Pressing for Progress, University of Hyderabad, 19-21 September 2019
7. Invited Talk, Unique breath figures on soft surfaces, Physics at surfaces and interfaces of soft materials' (PSISM-2019), Jadavpur, 26/09/2019.
8. Colloquium, Physics and Dance, Ashoka University, 30/10/2019.  
Invited Talk, Lubrication driven hierarchical self-assembly of droplets, Fracmeet 2020, With
9. Aswini Harindran, SRM Amaravathi, 5-7/2/2020.
10. Public Lecture, A balancing act: Physics of Movement and Dance, Science at the Sabha, Music Academy, 16/02/2020.
11. Invited Lecture, Self-assembly: a natural method to produce large scale structured surfaces, Science Day celebrations, Sastra University, 26/02/2020.

## Membership in Committees:

- ❖ Selection Committee at CUTN for Guest faculty in Media and Communications, Law, Vetting of syllabus for GITAM University – Melbourne University syllabus for BSc, Physics of Dance at Science at the Sabha – A public lecture for Chennai conducted annually by Institute of Mathematical Sciences, Ph.D thesis examiner, Anna University, Jan 29, 2019



### Area of Research

**Nonlinear Dynamics &  
Nano Biomaterials**

### Project Funds Sanctioned

**UGC-DAE:** ₹. 4,07880/-

**CSIR:** ₹. 24,41,800

**DST-SERB:** ₹. 6,60,000

### Patent - 1

**Total Publications : 138**

**Citations : 2980**

**H-Index : 33**

### **Ph.D Students Guidance**

On-going : 06

Post –Docs : 03

- ❖ Regular Associate of the Abdus Salam, International Centre for Theoretical physics (ICTP), Italy

### **Publications in Journals**

1. S. Sridevi, S. Sutha, L. Kavitha, D. Gopi, Physicochemical and biological behaviour of biogenic derived hydroxyapatite and carboxymethyl cellulose/sodium alginate biocomposite coating on Ti6Al4V alloy for biomedical applications, Materials Chemistry and Physics, 2020, Accepted for Publication, Impact Factor: 2.781, Publisher: Elsevier.
2. P. Saravanakumar, S. Sutha, L. Kavitha, P. Manoravi and D. Gopi, An innovative Azadirachta indica gum-mediated synthesis of cocoon-shaped nano-AgHAp from Lamellidens marginalis shells, International Journal of Applied Ceramic Technology, 17 (2020) 2008-2016, Impact factor: 1.074, Publisher: Wiley.
3. Ayyappan N and L. Kavitha, “Effect of Viscosity in DNA-RNA Transcription”, Engineering Sciences International Research Journal, Vol. 7 (2019) Spl Issue , ISSN 2320- 4338, Impact Factor: 2.54.
4. N. Ayyappan, Pavithra T, Christy Maria Joy, L. Kavitha, “Effect of Twist and Nonlinear Dynamics of Anharmonic Twist Opening Model of DNA”, Engineering Sciences International Research Journal, Vol. 7 (2019) Spl Issue, ISSN 2320- 4338, Impact Factor: 2.54.
5. E. Parasuraman and L. Kavitha, “Alternate way of soliton solutions in hydrogen- bonded chain”, Waves in Random and Complex Media, (2019) ISSN: 1745-5030, Impact factor: 3.223.



**Prof. Dr. L.  
Kavitha  
Professor & Head**

### Patent

Gopi, L. Kavitha, Synthesis of hydroxyapatite using lactic acid as green template, Indian patent, Application No. 1229/DEL/2014 A, Issue No. 22/2014, Patent granted 2020, Patent No: 333698



### **Publications in Conference Proceeding**

1. T. Pavithra , R. Ravichandran, Geo Sunny, L. Kavitha, “Electromagnetic lump soliton solution of (2 + 1) dimensional ferromagnetic nanowire with Dzyaloshinskii-Moriya interaction”, Vol. 25 (2020) 192-198, Materials Today: Proceedings. Impact Factor: 0.97.
2. M. Mathina, E. Shinyjoy, L. Kavitha, P. Manoravi and D. Gopi, A comparative study of naturally and synthetically derived bioceramics for biomedical applications, Materials today proceeding, (2019), Impact factor: 0.97, Publisher: Elsevier.
3. D. Bhagya Mathi, D. Gopi and L. Kavitha, Implication of lanthanum substituted hydroxyapa methyl pyrrole) bilayer coating on titanium for orthopedic applications, Materials today proceeding, (2019), Impact factor: 0.97, Publisher: Elsevier.
4. R. Priya, L. Kavitha and D. Gopi, Dynamic instability in neuronal microtubules, Materials Today: Proceedings, (2019), Impact factor: 0.97, Publisher: Elsevier.
5. S. Sridevi, S. Ramya, K. Akshaikumar, L. Kavitha, P. Manoravi and D. Gopi, Fabrication of zinc substituted hydroxyapatite/cellulose nano crystals biocomposite from biowaste materials for biomedical applications, Materials today proceeding, (2019), Impact factor: 0.97, Publisher: Elsevier.

### **Invited Talk/ Guest Lecture**

1. Delivered an invited lecture on “Solitons in Ferromagnetic nanowire” at International workshop-cum-conference on smart material and their Applications in Recent Technologies (SMART 2020) held during 4-5th March 2020, Periyar University, Salem
2. Delivered an invited lecture on “Perspectives of Science” at National Conference On “EMERGING MATERIALS & NANOTECHNOLOGY – 2020” (NCEMN – 2020) held during 28-29th February 2020, Thiruvalluvar Government Arts College, Rasipuram, Namakkal, Tamilnadu, India
3. Talk at Muthayammal College of Engineering, Rasipuram, Tamil Nadu on 28th February 2020 as a Chief guest for the Science day Celebration



## Chapters in Edited Volumes

D. Gopi, A. Karthika and L. Kavitha, Enhancement of biocompatibility by coatings, Handbook of Modern Coatings Technologies Volume 5: Fabrication Methods and Functional Properties: Volume 1 (9780444632401), 2020, Publisher: Elsevier.

## Project Details

Sl. No.	Title of the project and duration	Amount sanctioned (INR)	Period	Funding Agency
<b>Name of the Investigator: Prof. L. Kavitha</b>				
1	Effect of Spin Transfer Torque on the Switching dynamics of Magnetic Solitons in a Weak Ferromagnetic Nanowire”	4,07880	April 2019- March 2020	UGC-DAE CSR
2	Investigation on the propagation of Electromagnetic wave (EMW) and EMW induced ultrafast magnetization switching solution dynamics in ferromagnetic nanowires	24,41,800	2017-2020	CSIR
3	Mathematical Modelling and Exact Propagating soliton solutions of few nonlinear partial differential equations governing the nonlinear magnetization dynamics of ordered magnetic systems.	6,60,000	2017-2020	DST-SERB





## Conference Presentations

Prof. Dr. L. Kavitha

1. T. Pavithra , R. Ravichandran , Geo Sunny, L. Kavitha, Electromagnetic lump soliton solution of (2 + 1) dimensional ferromagnetic nanowire with Dzyaloshinskii-Moriya interaction, International Conference on Science and Technology of Advanced Materials (STAM 20) 14-16 January 2020, Mar Athanasius College(Autonomous) Kothamangalam, Kerala, India.
2. K. Raghavi, Mythili Kailas, Amrutha, L. Kavitha, Multi Solitonic profile of Dusty Plasma with five components, Conference on Plasma Simulation (CPS-2020), IPR-Gandhinagar, Gujarat, 23-24 January 2020.
3. Mythili Kailas, K. Raghavi, Amrutha, L. Kavitha, Wave Instability of Ion Acoustic Plasma Embedded Super Thermal Electrons, Conference on Plasma Simulation (CPS-2020), IPR-Gandhinagar, Gujarat, 23-24 January 2020.
4. L. Kavitha, K.Raghavi, C. Lavanya, Mythili Kailas, D. Gopi, Propagation of electrostatic solitary waves in four component plasma, International conference on Advances in Plasma Science and technology, Sri Sakthi Institute of Engineering and Technology, Coimbatore, 12-14 February 2020.
5. T. Pavithra , V. Senthil Kumar, Awadesh Mani, L. Kavitha, D. Gopi, Discrete soliton in a weak ferromagnetic nanowire, International workshop-cum-conference on smart material and their Applications in Recent Technologies on 4<sup>th</sup> March 2020, Periyar University, Salem.
6. Ayyappan L and L. Kavitha, Stability Analysis for the Twisted Peyrard- Bishop- Dauxois Model with Solvent Interaction and viscosity, International workshop-cum-conference on smart material and their Applications in Recent Technologies on 4<sup>th</sup> March 2020, Periyar University, Salem.
7. K. Saranya, A. Subramania, and L. Kavitha, Highly Electrocatalytic Electrospun Tungsten Carbide Nanoparticles Embedded Graphitized Carbon Nanofibers as an Alternative Counter Electrode for Dye-Sensitized Solar Cell, International workshop-cum-conference on smart material and their Applications in Recent Technologies on 4<sup>th</sup> March 2020, Periyar University, Salem.
8. D. Bhagyamathi, D. Gopi, L. Kavitha, Halloysite nanotubes reinforced yttrium substituted hydroxyapatite composite coatings on titanium for orthopedic applications, International Conference On Nanomedicine (ICON-2019) February 25-26, 2019, Madurai Kamaraj University, Madurai-21, Tamil Nadu, India.



9. Akshaikumar, D. Gopi, L. Kavitha, Naturally Procured Hydroxyapatite from Country Hen Egg Shells and  $K_2HPO_4$  Solution for Biomedical Applications, International Conference on Nanomedicine (ICON-2019) February 25-26, 2019, Madurai Kamaraj University, Madurai-21, Tamil Nadu, India.
10. G. Kathiravan, D. Gopi, L. Kavitha, Development of Samarium Substituted Hydroxyapatite Coating On Polyvinyl Pyrrolidone coated Titanium Alloy For Improved Antimicrobial And Corrosion Resistance Properties, International Conference On Nanomedicine (ICON-2019) February 25-26, 2019, Madurai Kamaraj University, Madurai-21, Tamil Nadu, India.
11. R. Suganthi, D. Gopi, L. Kavitha, Characterization of Poly O-Anisidine/HAP Composites for Medical Applications, International Conference on Nanomedicine (ICON-2019) February 25-26, 2019, Madurai Kamaraj University, Madurai-21, Tamil Nadu, India.
12. Ayyappan N and L. Kavitha, Effect of Viscosity in DNA-RNA Transcription, International Conference Innovations and Applications in Basic and Applied Sciences for Sustainable Development 2019 (ICS PIOUS HYD 2019), Organized by St.Pious X Degree & PG College, Hyderabad, India during 06/12/2019 - 07/12/2019 (Govt. of India Approved Conference).
13. N. Ayyappan, Pavithra T, Christy Maria Joy and L. Kavitha, Effect of Twist and Nonlinear Dynamics of Anharmonic Twist Opening Model of DNA” International Conference Innovations and Applications in Basic and Applied Sciences for Sustainable Development 2019 (ICS PIOUS HYD 2019), Organized by St.Pious X Degree & PG College, Hyderabad, India during 06/12/2019 - 07/12/2019.(Govt. of India Approved Conference)

### Membership in Committees:

- ❖ Chairperson – Public Relation Committee, Chief-Warden-CUTN, Member of the Court – CUTN, Member - Vidyalaya Management Committee , Member – Internal Compliance Committee, Selection Committee member

### Details of Collaborations

- ❖ Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamil Nadu, India, International Centre for Theoretical physics (ICTP), Italy and The Max Planck Institute for the Physics of Complex systems, Germany.



## Area of Research

**Statistical Mechanics &  
Computational Physics**

**Total Publications : 32  
Citations : 225  
H-Index : 06**

## Publications in Journal

1. Efficiency at the maximum power of the power law dissipative Carnot-like Heat engines with non-adiabatic dissipation M.Ponmurugan Commun. Theor. Phys. 72, 025601 (2020), IMP : 1.416.

## Invited Talk/ Guest Lecture

- ❖ Investigation of Ising model on square lattice with the effect of Second nearest neighbour interaction. A. Arul Anne Elden and M, Ponmurugan, BBAVS19, NIT, Kurukshetra, 14-15 September, India (2019).
- ❖ A Monte Carlo study of Ising model on Honeycomb lattice with additive Gaussian white noise. A. Arul Anne Elden and M, Ponmurugan, Young Scientist Conference, Biswa Bangla Convention Centre 5-7 November, Kolkata. India (2019)
- ❖ Spin quantum heat engine: A comparison of different methods to achieve Shortcut to Adiabaticity T. Kiran and M, Ponmurugan, Young Scientist Conference, Biswa Bangla Convention Centre 5-7 November, Kolkata. India (2019)
- ❖ Real time functional group analysis of Husingman blood coagulation using FTIR spectroscopy
- ❖ V. Yesu Rajua and M, Ponmurugan, Young Scientist Conference, Biswa Bangla Convention Centre 5-7 November, Kolkata. India (2019)



**Dr. M.Ponmurugan  
Assistant Professor**

## Ph.D Students Guidance

Completed : 01  
On-going : 04



## Area of Research

**Quantum Interferences,  
Cavity QED &  
Quantum Computation**

**Total Publications : 16  
Citations : 211  
H-Index : 07**

## Publications in Journal

1. H. B. Crispin and R. Arun, “Squeezing in resonance fluorescence via vacuum induced coherences”, J. Phys. B: At. Mol. Opt Phys. 53, 055402 (2020). Impact factor: 2.115



**Dr. R. Arun**  
**Assistant Professor**

**Ph.D Students Guidance**  
On-going : 02

**Area of Research**

**Experimental Condensed  
Matter Physics**

**Total Publications : 52  
Citations : 389  
H-Index : 12**

**Ph.D Students Guidance**  
On-going : 04

1. **K. Venkata Saravanan**, Swapna S. Naira, “Giant voltage generating microcantilevers based on Ba<sub>0.85</sub>Ca<sub>0.15</sub>Zr<sub>0.1</sub>Ti<sub>0.9</sub>O<sub>3</sub> and Co<sub>76</sub>Fe<sub>14</sub>Ni<sub>4</sub>Si<sub>5</sub>B for next-generation energy harvesters”, Scripta Materialia, Volume 180, Page 11, April 2020.
2. Roshan Jose, Vineetha. P, Charan Prasanth. S, Ammu Vijay and **K. Venkata Saravanan**, “Effect of CuO modification on Dielectric, ferroelectric and piezoelectric properties of Lead-Free SrBi<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub> ceramics”, Materials Research Express, Volume 7, 016302, 2020.
3. Vineetha. P, Roshan Jose and **K. Venkata Saravanan**, "Effect of ZnO on Ferroelectric Fatigue Retention and Thermal Stability of Ferroelectric Property in lead free (K<sub>0.5</sub>Na<sub>0.5</sub>)(Nb<sub>0.7</sub>Ta<sub>0.3</sub>)O<sub>3</sub> Ceramics", RSC Advances, Volume 9, Page 34888, 2019.
4. M. Jeyakanthan, Uma Subramanian, R. B. Tangsali, Roshan Jose and **K. Venkata Saravanan**, "Relaxor like colossal dielectric constant in CoWO<sub>4</sub> and CoWO<sub>4</sub>/PbWO<sub>4</sub> nanocomposites", Journal of Materials Science: Materials in Electronics, Volume 30, Page 14657, 2019.

**Chapters in Edited Volumes**

1. High-k Dielectric Materials: Structural Properties and Selection”, High-k Dielectric Materials, Apple Academic Press Publisher, Distributed by CRC Press- Taylor & Francis Group, ISBN: 9781771888431 (2020).
2. “Fabrication of Dielectric Thick Films by Electrophoretic Deposition and Their Characterization”, Recent Advancements in the Metallurgical Engineering and Electrodeposition, IntechOpen, DOI: 10.5772/intechopen.77535, ISBN: 978-1-78984-687-4, April 8, 2020. *Newsletter - Propagation*



**Dr. K. Venkata  
Saravanan**  
**Assistant Professor**

**Visiting Research  
Scientist Position**

**Period:** 15.05.19 to 25.07.2019  
**Institute:** Department of  
Chemistry @ Wright State  
University (WSD), Dayton, USA



## Publications in Journal

### Area of Research

**Semiconductors,  
Thin films &  
Nanostructures**

### Project Funds Sanctioned

**UGC : ₹. 06,00,000**

**DST-SERB: ₹. 46, 19, 600**

**Total Publications : 67**

**Citations : 551**

**H-Index : 15**

**Ph.D Students Guidance**

On-going : 04

1. Jayakrishnan, A. R., Alex, K. V., Kamakshi, K., Silva, J. P. B., Sekhar, K. C., & Gomes, M. J. M. (2019). Enhancing the dielectric relaxor behavior and energy storage properties of 0.6 Ba (Zr 0.2 Ti 0.8) O 3–0.4 (Ba 0.7 Ca 0.3) TiO 3 ceramics through the incorporation of paraelectric SrTiO 3. *Journal of Materials Science: Materials in Electronics*, 30, 19374-19382.
2. Alex, K. V., Prabhakaran, A., Jayakrishnan, A. R., Kamakshi, K., Silva, J. P. B., & Sekhar, K. C. (2019). Charge coupling enhanced photocatalytic activity of BaTiO3/MoO3 heterostructures. *ACS applied materials & interfaces*, 11(43), 40114-40124.]
3. Jayakrishnan, A. R., Yadav, P. V. K., Silva, J. P. B., & Sekhar, K. C. (2020). Microstructure tailoring for enhancing the energy storage performance of 0.98 [0.6 Ba (Zr0. 2Ti0. 8) O3-0.4 (Ba0. 7Ca0. 3) TiO3]-0.02 BiZn1/2Ti1/2O3 ceramic capacitors. *Journal of Science: Advanced Materials and Devices*, 5(1), 119-124.
4. Jayakrishnan, A. R., Alex, K. V., Tharakan, A. T., Kamakshi, K., Silva, J. P., Prasad, M. S., ... & Gomes, M. J. (2020). Barium-doped zinc oxide thin films as highly efficient and reusable photocatalysts. *ChemistrySelect*, 5(9), 2824-2834.

## Invited Talk/ Guest Lecture

- ❖ Kevin V. Alex and K.C.Sekhar, Participated and presented the paper in the 'International Workshop on Catalysis and Applications (IWCA 2020)' during January 28-30, 2020 at Mahatma Gandhi University, Kerala. [Best oral presentation award]
- ❖ A.R.Jayakrishnan and K.C.Sekhar, Participated and presented the paper in the International Conference on 'Smart Materials and their Applications in Recent Technologies (SMART 2020)' during March 4-5, 2020 at Periyar University, Tamil Nadu.



**Dr. K.C. Sekhar**  
**UGC- Assistant**  
**Professor**

## Publications in Conference Proceeding

KV Alex, A Govind, AS Ibrahim, **KC Sekhar**, AIP Conference Proceedings 2082 (1), 040003 (2019).



### Membership in Committees:

- ❖ Selection Committee Member as an External Expert for the post of ‘Project Assistant’ in DST-SERB project, Department of Physics, NIT Trichy.

### Details of Collaborations

- ❖ University of Minho, Braga & University of Porto, Portugal Penn State University, U.S.A

### Project Details

Sl. No.	Title of the project and duration	Amount sanctioned (INR)	Period	Funding Agency
<b>Name of the Investigator: Dr. K. C. Sekhar</b>				
13	Title of project: Functional nanomaterials for memory applications	6,00,000	12/09/2017 – 11/09/2019	UGC
14	Novel memristors based on lead free ferroelectrics semiconductor heterostructures	46,19,600	16/03/2018 - 15/03/2021	DST -SERB



## Area of Research

**Magnetic Materials & Super Conductor**

## Project Funds Sanctioned

**DST : ₹. 1,00,00,000**

**Total Publications : 42**

**Citations : 648**

**H-Index : 13**

## Details of Collaborations

- ❖ **National Taiwan University, Taiwan, Academia Sinica, Taiwan**

1. Crystal Growth and Magnetic Properties of Topological Nodal-Line Semimetal GdSbTe with Antiferromagnetic Spin Ordering R Sankar, I. Panneer Muthuselvam, K Ramesh Babu, G. Senthil Murugan, Karthik Rajagopal, Rakesh Kumar, Tsung-Chi Wu, Cheng-Yen Wen, Wei-Li Lee, Guang-Yu Guo and Fang-Cheng Chou. Inorg. Chem. 58, 11730 (2019). Impact Factor: 4.85
2. Gd<sub>2</sub>Te<sub>3</sub> an antiferromagnetic semimetal. I. Panneer Muthuselvam, Raja Nehru, K Ramesh Babu, K Saranya, S N Kaul, Shen-Ming Chen, Wei-Tin Chen, Yanwen Liu, Guang-Yu Guo, Faxian Xiu, R Sankar, Journal of Physics: Condensed Matter. 31, 285802 (2019), Impact Factor: 2.711

## Invited Talk/Invited lecture / Chief Guest

- ❖ Participated and delivered lecture on “Smart Materials and their Applications in Recent Technologies” – March, 2020
- ❖ Single crystal growth and physical properties of Gd<sub>2</sub>Te<sub>3</sub>, Smart Materials and their Applications in Recent Technologies – March, 2020, Royal Society of Chemistry and Department of Chemistry, Periyar University, at Salem.

## Project Details

Title of the project	Amount	Period	Fund
Name of the Investigator: Dr. I. Panneer Muhtuselvam			
A new exotic magnetic phase state zigzag spin change Sr <sub>2</sub> M(AO <sub>3</sub> ) <sub>3</sub> (M=Cu, Ni, Co)	1,00,00,000	(2017-2022)	DST



**Dr. I Panneer Muthuselvam**  
**DST- INSPIRE**  
**Faculty**

**Ph.D Students Guidance**  
On-going : 02





## Welcome to newly joined faculty

He was an experimental high energy Physicist. His area of research is the study of Quark-Gluon Plasma (QGP) in ultra-relativistic heavy-ion collision experiments, like LHC, CERN at Geneva, and RHIC, Brookhaven National Laboratory (BNL), New York. He has done his MSc from Utkal University with Particle Physics specialization. He got his Ph.D. degree from IIT Bombay in 2015. After that, He joined as a postdoctoral fellow at Inha University, Sout Korea for four years (May 2015 - May 2019). Then he joined at IIT Madras as Institute Postdoctoral Fellow (IPDF) (Aug 2019 - March 2020). He also worked as a visiting researcher at CERN, Geneva, Switzerland, and BNL, New York, USA. His main research area is the correlation-fluctuations study to characterize the properties of the possible QGP medium formed in the ultra-relativistic heavy-ion collision using the experimental data of ALICE and CMS experiments at CERN. His study focuses on the exploration of the QCD phase diagram at high temperatures and vanishing baryo-chemical potentials. He also devoted some time to the study of beauty hadron production in pp and heavy-ion collision experiments. Moreover, being an experimentalist his research interest is also in R&D of silicon pixel detector. He has four years of experience in the testing, characterization, and fabrication of the silicon pixel detector of the ALICE Upgrade project at the LHC, CERN. He also involved in the phenomenological study and model simulations related to heavy-ion and QGP physics. Recently, he has joined to Central University of Tamil Nadu as an Assistant Professor.



**Dr. Nirbhay Kumar  
Behera**  
**Assistant Professor**



## Welcome to newly joined faculty

He was born and brought up in West Bengal, India. His school and undergraduate studies (Physics honours, University of Calcutta) both are from West Bengal. He has completed his Masters in Physics in 2010 from Indian Institute of Technology Madras and Tata Institute of Fundamental Research for his graduate school. His PhD thesis in 2015 on the broad area of Atomic, Molecular and Optical (AMO) Physics. He has joined to Lund University in Sweden for postdoctoral research work in 2015 on Laser-plasma based Proton Acceleration. He spent 3 years in Lund before joining CEA, Universite-Paris-Saclay for his second postdoctoral research work in 2018 on Photoionization Reaction Dynamics in large quantum systems. In June 2020, he has joined to Central University of Tamil Nadu as an Assistant Professor.



**Dr. Malay Dalui**  
**Assistant Professor**



## Welcome to newly joined faculty

He has obtained his Bachelor of Science with Honours degree in Physics and Master of Science in Physics from Kirori Mal College, University of Delhi. His PhD work at the Department of Physics and Astrophysics, University of Delhi, centred around Cosmology and Particle physics from higher dimensional theories. He has worked at Physical Research Laboratory (PRL) , Ahmedabad as a postdoctoral fellow. After completing his tenure at PRL, He joined the Department of Physics, St. Stephen's college, University of Delhi. He worked there for over an year before moving to Indian Institute of Technology Madras, Chennai as a postdoctoral fellow under the National Post-Doctoral Fellowship program sponsored by the Department of Science and Technology, Government of India. He is a lifetime member of Indian Association for General Relativity and Gravity. Recently, he has joined to Central University of Tamil Nadu as an Assistant Professor.



**Dr. Sampurn Anand**  
**Assistant Professor**



PDF/Research Associate/  
Research Assistants

Name : Dr.R.Rajivgandhi

Designation : Research Associate, SCANMAT

Title : Developing Materials for High-Efficiency Silicon-Hybrid Perovskite Tandem Solar Cells



Name : T. Pavithra

Designation : Project Assistant

Title : Effect of spin transfer torque on the switching dynamics of magnetic solitons in a weak ferromagnetic nanowire

Name : Dr. Ramya Velmurugan

Designation : DR. DS Kothari post doctoral fellow

Title : Biowaste processed hydroxyapatite reinforced graphene oxide/biopolymer composite for biomedical applications



Name : Dr. E. Shinyjoy

Designation : DR. DS Kothari post doctoral fellow

Title : Fabrication of smart duplex layer on metallic implants : A novel and multifunctional material for improved orthopedic applications.

Name : Dr. K. Saranya

Designation : DR. DS Kothari post doctoral fellow

Title : Enhancing the Photo-voltaic Performance of Dye Sensitized Solar Cells Using Efficient Counter Electrodes.





PhD Scholars 2019

Santy M Thomas



Madhumathy. R



Battinapati Dundi sri Chandana



Raghavi K.





PhD Scholars 2019

Abdulkareem U



Swathi P V



Rugmini R



Kiran kumar N.S





# Scholarships / Internships (2019-20)

S.No	Name	Summer Project	Date
1	Greeshma I150007	PRL ,Ahmedabad	14-5-2019 to 8-7-19
2	Vaigal I150128	Raja Ramana Center for Advanced Technology (RRCAT). Indore	20/05/19 - 12/07/19
3	Jesmary I150121	IUAC, New Delhi	1 July 2019 to 21 July 2019
4	Anaswara I150108	IIT Madras	2019
5	Hema Prasath I150117	IIIT Hyderabad	08/07/2019 - 13/07/2019
6	Abhyoudai I150103	NIT Patna	14-5-2019 to 19-7-2019
7	Deepthi PG I150113	Institute of mathematical sciences, Chennai	13.5.19-31.7.19
8	Anaswara Ramachandran	IIT, INDORE -	15 <sup>th</sup> May -11 <sup>th</sup> July 2019
9	Meera. S	IISER – Thiruvananthapuram	15 <sup>th</sup> May to July 2019
10	Harikrishnan P	MS University	17 <sup>th</sup> May to 11 <sup>th</sup> July 2019



# Ph.D. Students

# Achievements (2019-20)

<b>Ph.D. Students Abroad Visit</b>			
<b>S.No</b>	<b>Name</b>	<b>Institution</b>	<b>Year</b>
1.	Mukesh Kumar Choudhaiy (SERB OVDF Fellowship)	University of Oslo, Norway	2019
2.	Ann Maria Augustine	University of Oslo, Norway	2019
<b>Ph.D. (Alumni) Joined in Post-Doctoral Fellowship I Research Associate etc.,</b>			
<b>S.No</b>	<b>Name</b>	<b>Institution</b>	<b>Year</b>
1.	Dr. Lokanath patra	University of Michigan Mt Pleasant MI, United States	2019
2.	Dr. Aswin kishore	Uppsala University, Sweden.	2019
3.	Dr. K. Nilava rasi	NIT Trichy	2019
4.	Dr.A. Ramesh	Bhanaras Hindu University .	2019
5.	Dr. I. Iyyappan	Post-doctoral Researcher at IISER, India, Mohali.	2019





## Indo-Norwegian Collaborative Program



## DAE C.V. Raman Lecture



## FMET-2019



## Alumini Meet -2019

Events



# National Science day celebrations- EON-2020

February 28, 2020.

Events (EON-2020)



**189** Students Participated



# Events (EON-2020)





# Distinguished Visitor

**Distinguished Visitor :** Prof. G. Baskaran,  
**Institute :** Institute of Mathematical Sciences,  
 Chennai **Topic:** Room Temperature  
 Superconductors: Ephemeral Elusive to Stable  
 Ones  
**Date :** 03-12-2019

**Distinguished Visitor :** Dr. Deepak  
 Kallepalli, Senior Research Associate,  
 Canada  
**Topic :** Ultrafast laser desorption and  
 ionization - applications  
**Date :** 05-03-2020

# Departmental Seminar

S.No	Name of the speaker	Title of the seminar	Date
1	Prof.M.V.Satyanarayana, Professor, IIT Madras	On Methods common to Electromagnetic Theory and Wave Mechanics	02.04.2019
2.	Mr. Charan Prasath, Research Scholar, Dept. of Physics, CUTN	Investigation of thermoelectric properties of Sr <sub>1-X</sub> Mn <sub>X</sub> Ti <sub>1-Y</sub> N <sub>by</sub> O <sub>3</sub> - A unitcell distortion approach	05.04.2019
3	Ms.Ammu Vijay, Research scholar, Department of Physics, CUTN	High Temperature power factor of Y <sub>x</sub> Ca <sub>1-X</sub> MnO <sub>3</sub> (0<x<0.1)	12.07.2019
4	Mr. Kevin V Alex, Research Scholar, Department of Physics, CUTN	Substrate temperature induced effect on microstructures, optical and photocatalytic activity of ultrasonic spray pyrolysis deposited MOO <sub>3</sub> thin films.	19.07.2019

SEMINAR (2019-20)



## Departmental Seminar (2019-20)

SEMINAR (2019-20)

S.No	Name of the speaker	Title of the seminar	Date
5	Mr.Geo Sunny, Research scholar, Department of Physics, CUTN	Non-linear dynamics in ordered magnetic materials	02.08.2019
6	Mr.Jayakrishnan A R, Research Scholar, Department of Physics, CUTN	Composition-dependent $x\text{Ba}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}-(1-X)(\text{Ba}_{0.7}\text{Ca}_{0.3})\text{TiO}_3$ bulk ceramics for high energy storage applications	09.08.2019
7	Mr.Mukesh Kumar Choudhary, Research Scholar, Department of Physics, CUTN	Design higher efficient thermoelectric materials using multinary alloying for sustainable energy	16.08.2019
8	Mr.Vishnu Sudarsanan, Research scholar, Department of Physics, CUTN	Computational understanding of cathode materials of Na-ion battery	30.08.2019
9	Mr.Kiran T, Research scholar, Department of Physics, CUTN	Combined study of shortcut to adiabaticity using invariants for quantum harmonic oscillators with time varying mass	11.10.2019
10	Prof. G. Baskaran, Institute of Mathematical Sciences, Chennai	Room Temperature Superconductors: Ephemeral Elusive to Stable Ones	03.12.2019
11	Mr. Kevin V Alex, Research Scholar, Department of Physics, CUTN	Charge coupling enhanced photocatalytic activity of $\text{BaTiO}_3/\text{MOO}_3$ heterostructures	13.12.2019
12	Dr. D. Aravinthan, Guest Faculty. Dept. of Physics, CUTN	Spin Transfer torque switching in pentalayer nanopillar	07.02.2020
13	Dr.Deepak Kallepalli	Ultrafast laser desorption and ionization - applications	05.03.2020
14	Ms.Madhumathy R, Research Scholar, Department of Physics, CUTN	Recent progress in topological materials	13.03.2020
15	Ms.Anjali N Nair, Research scholar, Department of Physics, CUTN	Entanglement production for interacting qubits via quantum interferences	26.07.2019

# Decennial History (2009-2019)

## The Department of Physics

### • Genesis and Brief History of the Department:

- The department of Physics is one among the very first departments formally established in the initial phase in 2010 under the School of Basic and Applied Sciences at the Central University of Tamil Nadu. The modest beginning of the department was happened in a temporary campus, at collectorate annexure, located at Tanjore road. The department is offering an Integrated Master's program (I M.Sc.) in Physics, from the year of inception at 2010. The department started its academic journey with the first I M. Sc. batch comprised of 17 students from across the country. In the year of 2012, Prof. P. Ravindran was appointed as Head of the Department, Dr. V. Madhurima and Dr. M. Ponmurugan also appointed and joined as Regular faculties in the Department of Physics. At the end of 2013, the department of Physics moved from the temporary campus to the present campus at Neelakudi. In the early years of establishment, the physics Laboratories for both teaching and research along with class rooms were run in Central Lecture Complexes (1 & 2) of the Neelakudi campus. Subsequently, Dr. L. Kavitha, Dr. R. Arun and Dr. Venkata Saravanan K appointed as regular faculties in the year of 2013. In addition to existing permanent faculty, seven more faculties (on contract) are engaged in teaching IMSc (Physics) courses. Apart from the regular faculties, Dr. Sterlin Leo Hudson and Dr. I. Panneer Muthuselvam have joined as DST Inspire faculties in the years 2013 and 2018 respectively, and Dr. K. Chandra Sekhar has joined in 2015 as an UGC Assistant professor. Meanwhile, Dr. V. Madhurima was appointed as Head of the Department in June 2015.



# Continue...

- Our honorable Vice-Chancellor Prof. A. P. Dash graciously inaugurated the newly constructed (Lab based school) the Department of Physics, a two-storied building for 62000 sq.ft in January 2016. At present, the department of Physics is well equipped on par with international standard with the following facilities, 10 teaching labs, 14 independent research labs, 6 seminar rooms, 2 conference halls, 2 discussion rooms and also one visiting faculty room. Further, it has also well-equipped material synthesis and characterization labs. Indeed, all the classrooms are highly equipped with state-of-the-art audio-visual equipment to enhance the quality of learning, and smart class rooms are also used for specialized teaching courses on MOOCS and Swayam.



# Lab to Moon Project

Plants do photosynthesis by using sunlight, carbon-dioxide (CO<sub>2</sub>) chlorophyll. However, moon doesn't have atmosphere and climate is either too hot or too cold which makes it to difficult to produce food on it. **Santhosh Roychowdhury and Sukanya Roychowdhury** collaborated with **Autumn Kelsea**, a computer system engineer from Arizona State University under the guidance of **Prof. P. Ravindran**, department of Physics are trying to carry out a prototype photosynthesis experiment.

They propose to use a 250 gram micro-lab consisting of polycarbonate capsule which is about 110 mm height. It consists of onboard computer which can send the experimental data to Earth. Most organisms will die on Moon. They chose Extremophile cynao bacteria which can withstand the harsh conditions and are expecting to carry out photosynthesis on the Moon. Team Indus, a space tech start-up based in Bengaluru, on the name of Lab2Moon called for projects form students. Out of 3,000 entries from 300 cities in over 15 countries, Santhosh and Sukanya's project was one among the five selected for sending on to moon.

If their experiment is successful, it will pave the way to test the photosynthesis on larger scale and think of sustaining larger plants and organisms in capsules on Moon and ultimately shows a way for moving humanity into outer space.





# Perturbations Physics Club (PPC)

- Perturbation Physics Club was inaugurated by Prof. A. P. Dash (Vice Chancellor,CUTN), Prof. T. Sengadhir Registrar Acting, CUTN) along with Dr. K. C. Sekhar (PPC-Coordinator) on 19/01/2016. Perturbations Physics Club aims to develop a “Physics Creative Community” with a wider knowledge and deep understanding of physics through the innovative practices. Perturbation Physics Club is used to organize several competitions such as quiz, debate, oral and poster presentation etc. Every year the department has celebrating the National Science Day in grand manner under the banner of perturbation club.



- ❖ On behalf of perturbation physics club we have organized cultural event on 19/01/2016 evening at 6.00pm



# Science day

- The Physics department organizes several co-curricular activities. Eminent researchers/scientists are invited to deliver special lectures to motivate the young minds into the exciting field of physics and to give an over view of the developments and opportunities in science and technology across the globe, in general, and India in particular. As part of the National Science day, to mark the occasion of Sir C. V. Raman's discovery "The Raman Effect", department is organizing science fairs/exhibitions on 28th of February every year.



# E-magazine Pravega

- Pravega, e-newsletter from the department of Physics, means “acceleration” in Sanskrit. It reflects the dynamism of our thoughts, ideals, and emotions and of our attitudes. The intention of this newsletter is in simple words – to stay in touch. In the daily humdrum of classes, labs and exams, we don’t seem to find time to communicate some essential details, to exchange academic and semi-academic ideas and to remind ourselves that we belong to the Physics fraternity of CUTN.



# SPARK

- The Science Park of CUTN, initiated by the Department of Physics, was inaugurated on 11<sup>th</sup> September 2017 by our Vice Chancellor, Prof A P Dash. This is a formal long-term outreach program of the University that would cater to spreading of science among school students. The SPARK, aimed at hands-on learning for school going students, had lived up to its expectations in creating an interest in the sciences. SPARK has covered all the major subjects like Physics, Mathematics, Chemistry and Life Sciences.



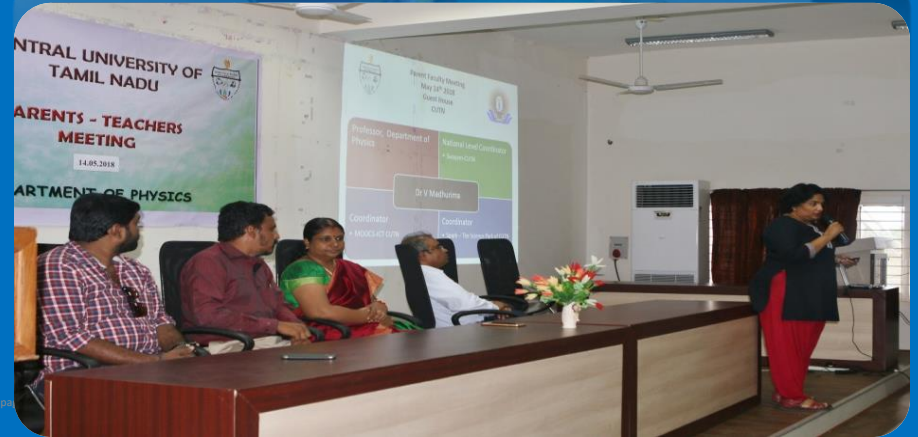
# Educational Tour

- Students learn more from informal learning. In this aspect, physics department encourages industrial and research centers visits where they can interact with researchers and gain knowledge and my go for doing research in those fields. It also provides time for students to relax and rejuvenate and spend some time to explore. In the academic year 2016-2017, a group of students IMSc students along with faculty members visited Kodaikanal. Students were taken to the Indian Institute of Astrophysics, where they learned about several fields and aspects of astrophysics and also visited a museum in the institute explaining instrumentations. Furthermore, the students also took up to tourist spots such as Moir Point, Green Valley, Kodaikanal lake.
- In the current academic year (2018-2019), the IV year IMSc Physics students have visited National Institute of Oceanography (NIO) Goa where they interacted with the scientists and interacted with them to setup their future carrier. The scientists working in NIO expressed their willingness to provide opportunity to carry out their PhD studies. Students also explored Eco park, historical places in around of Goa and Dandeli.



# Parents and Teacher Association

- The parents and teachers meeting is being conducted by the department regularly once in a year for the past 4 consecutive years. The department is arranging one-to-one interaction between parents and faculty handling classes and depending on the feedback of parents, it is taking necessary steps to enrich students' knowledge and meet the demands and expectations of the students and teachers.







# Interaction with Parents



# University Grant Commission Scheme of FREE Coaching classes for Competitive Exams

- University Grant Commission Scheme of FREE Coaching classes for Entry into service cell Central/State Services inaugurated by Prof.A.P.Dash (Vice chancellor, CUTN) along with Dr.M.Ponmurugan (Coordinator, Department of Physics, CUTN), on 21-05-2016. The centre scheme of this program is to prepare students to gain useful employment in Group 'A', 'B' and 'C' in Central services, State services and equivalent positions in private sector. Also this program focusses on the specific requirements of a particular competitive examination. Eminent resource persons for all the fields delivers the classes, end of each subject, the exams are conducted as like competitive exams pattern.



# University Grant Commission Scheme of FREE Coaching classes for CSIR, UGC-NET Exams

- Free Coaching classes for UGC-NET exams was inaugurated by the coordinator Prof. S. Nagarajan (Department of Chemistry, CUTN) along with Dr. R. Arun (UGC-NET Coaching, In-charge, Department of Physics, CUTN), on 24-08-2016. The main objective of this program is to help the students to prepare for the various national and International level exams related to Physical science. Students who are in the third and above year of I. M. Sc students are eligible to attend the classes. The response from the students has been positive and encouraging. Until now, 7 students are cleared GATE exam, 2 students are qualified CSIR-NET lectureship and one student cleared JAM exam.



# Conferences

- Department of Physics has organised several research conferences: National conference on ‘Advances in Computational Physics’ during February 14-16, 2013; National Conferences on ‘Current Trends in Soft Matter’ during March 19-20 and Advances in Computational Materials Science during April 23-25, 2015; Advance Experimental Technique (AET) conference during March 15-16, 2018

Aiming to introduce and revive the fundamental aspects of Quantum Mechanics, Statistical Physics, Thermodynamics and Astrophysics at a level necessary for a good understanding and to review the applications and latest developments in detail, a crash course on ‘Lecture Series in Physics II (LSP-2018)’ was organised during March 10-14, 2018. Over 100 students participated. A talk on Fundamentals of Astrophysics was delivered by Prof. M. S. Sriram, University of Madras.



# Photo Gallery



# Photo Gallery



# Photo Gallery



# Photo Gallery

