



PHYSICS NEWSLETTER

DECEMBER, 2024
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Post-Graduate & Research Department of Physics
Arul Anandar College (*Autonomous*)

Affiliated to Madurai Kamaraj University
Reaccredited by NAAC at 'A' Grade

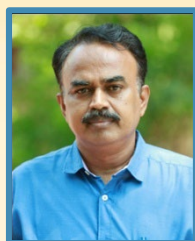
Karumathur – 625514, Madurai – Dt. Tamil Nadu

Department Profile

FACULTY MEMBERS



**Dr. K. S. JOSEPH
WILSON**
Associate Professor



Dr. A. SHANMUGARAJU
*Associate Professor &
Head*



Dr. S. VALANARASU
Assistant Professor



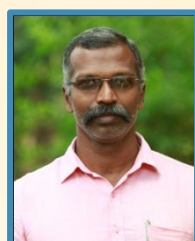
Dr. J. SOPHIA
Assistant Professor



Dr. C. S. A. RAJ
Assistant Professor



Dr. S. SEBASTIAN
Assistant Professor



Dr. M. ANTONY
Assistant Professor



Dr. I. INIGO VALAN
Assistant Professor



Dr. P. DIANA
Assistant Professor

PHYSICS LABORATORY TECHNICIANS



Mr. P. DHARMARAJ
Lab Technician



**Mr. V. JUSTIN
SAHAYARAJ**
Lab Technician



Mr. P. MARIAPPAN
Lab Technician

Editorial Desk

Physics Department Newsletter

Dear Readers,

Welcome to the 2023-24 edition of the Physics Department Newsletter! As we close another vibrant chapter in our journey of exploration and discovery, this issue is a celebration of the curiosity, dedication, and achievements that define our faculties in the PG and Research Department of Physics in Arul Anandar College.

Physics continues to shape our understanding of the universe, from the mysteries of quantum mechanics to the vastness of astrophysical phenomena. Within these pages, you will find a showcase of groundbreaking research publications, innovative activities, and inspiring stories from our students, faculty, and alumni. Each contribution highlights the collaborative spirit that drives our department and underscores our commitment to advancing the frontiers of knowledge.

This issue also reflects on recent seminars, workshops, and outreach initiatives that connect our department to the broader scientific and public communities. These events remind us of the importance of fostering dialogue and sharing ideas across disciplines to tackle the challenges of the modern world.

**‘Physics
continues to
shape our
understanding
of the universe’**

As we look ahead, the Physics Department remains steadfast in its mission to inspire and empower the next generation of physicists. Whether you are a student eager to learn, a researcher pursuing new discoveries, or an alumnus looking to reconnect, we hope this newsletter serves as a source of inspiration and pride.

Thank you for being a part of our journey. Together, let us continue to unravel the mysteries of the sun and cosmos, novel materials and their properties, and push the boundaries of what is possible.

With best wishes,

Dr. A. Shanmugaraju

Associate Professor and Head

PG and Research Department of Physics
Arul Anandar College, Karumathur, Madurai



Department Dynamics

Post-Graduate & Research Department of Physics survived and came out with flying colours in the academic year 2023-2024. The Department organized an international conference on materials science and a national workshop on experimental astronomy to promote the research works in Physics. Seven guest lecturers were organized by the department, resource persons working in various branches of physics motivated the students and explained them about the developments and opportunities in Physics. Two industrial visits to CECRI, Karaikudi, & Solar observatory, Kodaikanal and an educational tour to Thumba rocket launching station were organized for the students. Six educational activities were organized by the students of physics department through the Physics association including an intra-departmental competition INTRA - 2023 and an inter-collegiate Physics competition PHYSAAC - 2024 to endorse the fun and joy in learning physics. Carrier based special lectures and a carrier oriented program were offered through the physics department in which many students from the department as well as from other departments of the college benefited. Especially a value added course on 'Mobile Phone Hardware Technician' was offered to the students of the college through PG & Research Department of Physics, Arul Anandar College, Dr. M. Antony, Assistant Professor

Academic year 2023-2024 produced two doctoral candidates defended their doctoral thesis. On the whole the department has produced 27 doctorates. 25 research articles were published in internationally reputed journals in this academic year. The department has established a memorandum of understanding (MoUs) with St. Joseph's college for women, Alappuzha, Kerala.



Ms Panimaya Pesija, Assistant Professor, PG and Research Department of Physics, AAC was relieved from the department duty in the academic year 2023-2024. The department thank Ms. Panimaya Pesija for her service.

Ms. S. Jayasri Devadharshini, (III B.Sc., Physics) served as the student's secretary of the Physics association for the academic year 2023 - 2024. The department appreciate her efforts and involvement in Physics association activities.



Research Achievements

- ✓ In the academic year of 2023-2024, two research scholars have finished their doctoral degree from the Post Graduate and Research Department of Physics, Arul Anandar College.
- ✓ Memorandum of Understanding was signed between Arul Anandar College and St. Joseph's College for Women, Alappuzha, Kerala.
- ✓ A research grant was awarded to Mr. P. Surya, Post- graduate student, under the guidance of Dr. J. Sophia, Assistant Professor of Physics, through the funding agency Tamil Nadu State Council for Science and Technology – Student Project Scheme.
- ✓ An ongoing research project through the Government of India funding agency Department of Science and Technology – Science and Engineering Research Board.

Doctorates Awarded & Registered

In the academic year 2023- 2024 two Ph.D., students completed their doctoral viva-voce examination and were pronounced doctorates in various fields. The details of which is listed below,

Sr. Arockiya Michael Mercy defended her thesis entitled “Studies on the optical and electrical properties of some materials and their applications” under the supervision of Dr. K.S. Joseph Wilson on 18/07/2023, Dr. A. T. Ravichandran, Associate Professor, Department of Physics, National College, Tiruchirappalli conducted the viva-voce examination.

Mr. Gnanasekaran defended his thesis entitled “Fabrication of metal ion doped copper oxide thin films using nebulizer spray technique for photo-detector application” under the supervision of Dr. S. Valanarasu on 15/12/2023, Dr. R. Kannan, Head, Department of Physics, Anna University Regional Campus, Madurai and Dr. B. Deva Prasad Raju, Sri Venkateswara University, Tirupathi served as the external examiners and conducted the viva-voce examination.

Mr. S. Ashwin Amirtharaj registered for his doctoral degree for his work entitled “Investigation on the characteristics of solar transients and their effects on space weather” under the supervision of Dr. A. Shanmugaraju, Associate Professor & Head, PG & Research Department of Physics, AAC.

Research Projects

Tamil Nadu State Council for Science and Technology – Student Project Scheme was awarded to Mr. Surya under the guide-ship of Dr. J. Sophia for the project entitled ‘Microwave assisted synthesis of $\text{NiO}_{0.5}\text{ZnO}_{0.5}\text{Mn}_2\text{O}_4$ nano-composite for magnetic applications for the academic year 2023-2024.

Government of India funding agency Department of Science and Technology – Science and Engineering Research Board funded project entitled, “ Investigation of observations of solar eruptive events and their effects, associated activities and their source region characteristics” awarded to Dr. A. Shanmugaraju, is an ongoing research project in the academic year 2023- 2024.

Books & Chapters Published

Books published

Book title	Editors	ISBN No./ Publisher
Proceedings of the International Conference on Recent Trends in Materials Science	Dr. A. Shanmugaraju Dr. K.S. Joseph Wilson Dr. C.S.A. Raj	978-93-94448-74-2 / Arul Anandar College, Karumathur

Chapters published

Faculty	Book title	Chapter title	ISBN	Publisher
Dr. K. S. Joseph Wilson	Proceedings of the 3 rd International conference on Light Applications in Science and Engineering Research (LASER-2023)	Device Structure Optimization of Cs ₄ CuSb ₂ Cl ₁₂ -based Perovskite Solar Cell using SCAPS 1-D	978-81-1982-108-2	Department of Physics, Periyar University, Salem
		Design and Analysis of Multiband Microstrip Patch Antenna with DGS for Wireless Communications	978-81-1982-108-2	Department of Physics, Periyar University, Salem
	Proceedings of International Conference on Artificial Intelligence, Cyber security & Mathematical Modelling (AICMM 2023)	Design of 1D Ternary Photonic Crystal-based Anti-Reflective Coating using Transfer Matrix Method for Solar Cells	978-93-56254-58-9	Loyola College of Arts & Science, Mettala, Namakkal.
Dr. B. Prakash	Recent Advances in Applied Science and Engineering	Innovation Technologies to Rejuvenate the Human Lives - An Overview	979-88794-593-64	Writers Corner Publication, Chennai
	Recent Advances in Applied Science and Engineering	An Incredible Innovative Smart Cities in Future: A Review	979-88794-593-64	Writers Corner Publication, Chennai

Faculty Development Programme

Faculty	Title of the Programme	Duration
Dr. S. Valanarasu	Refresher Course In "Ecology And Environmental Sciences	16 th - 30 th January, 2024
Dr. B. Prakash	Five days faculty development Program on advanced materials for energy applications Organized By Sathyabama Institute Of Science And Technology, Chennai.	9 th - 13 th October, 2023

Research Publication

Name of the Author	Title of the Paper	Name of the Journal	Date of Publication	ISSN
K. S. Joseph Wilson	Design of 1D Photonic Crystal Based Sensor for Detection of Cancer Cells	Nano World Journal	21-12-2023	2379-1101
	Comparing the Performance of Lead-based and Lead-free Inorganic Perovskite Solar Cell Using SCAPS-1D	Nano World Journal	22-12-2023	2379-1101
	Investigation on short-circuit current density (J_{sc}) in the dye-sensitized solar cells by optimizing photo electrode thickness	Optik	09-08-2023	0030-4026
	Development of environmental friendly high performance Cs_2TiBr_6 based perovskite solar cell using numerical simulation	Applied Surface Science Advances	01-06-2023	0169-4332
	Comparative Study of Polarization-Dependent Conversion Efficiency of GaAs and Si Solar Cells at Oblique Incident Angles Using Surface DLAR Coating of $MgF_2/ZnSe$	Crystal Research and Technology	01-08-2023	0232-1300
	Gain Enhancement of Composite Photonic Crystal Microstrip Patch Antenna Inspired by Maxwell Garnett Model for C-Band, X-Band and Ku Band Applications	Crystal Research and Technology	29-08-2023	0232-1300
	Experimental and theoretical studies on improving the efficiency of ZnO-based dye-sensitized solar cells using single-layer anti-reflective coating	Canadian Journal of Physics	28-11-2023	1208-6045
	Theoretical analysis on one-dimensional metamaterial nanocomposite photonic crystal	Optical Materials	01-03-2024	0925-3467
	A Theoretical Investigation of the Electrical and Dielectric Properties of PDMS-CNT	Macromolecular Theory and Simulations	08-02-2024	1521-3919
	Investigations on Integration of CdS/CdTe Thin Film Solar	Applied Solar Energy	22-02-2024	0003-701X
	Compact inset-fed rectangular patch antenna for c-band applications	Telecommunications and Radio Engineering	23-02-2024	0040-2508

Name of the Author	Title of the Paper	Name of the Journal	Date of Publication	ISSN
A. Shanmugaraju	Solar active region magnetic parameters and their relationship with the properties of halo coronal mass ejections	Journal of Atmospheric and Solar-Terrestrial Physics	01-08-2023	1364-6826
	Solar source longitudinal dependence of SEPs and their association with solar flares and radio-loud CMEs	Astrophysics and Space Science	01-10-2023	0004-640X
	Magnetic Properties of Source Regions of CMEs and DH Type II Radio Bursts	Solar Physics	01-12-2023	1573-093X
S. Valanarasu	Nebulizer-assisted spray pyrolysis development of rare earth (Pr ³⁺) doped In ₂ S ₃ thin films for an intense ultraviolet photocurrent response	Materials Chemistry and Physics	15-10-2023	0254-0584
	Effect of coating temperature on the physical properties of Bi ₂ S ₃ thin films for photo detector applications	Journal of Materials Science: Materials in Electronics	21-01-2024	0957-4522
	Investigation of sensing properties of Sn-doped NiO thin films for the detection of ammonia gas	Materials Science & Engineering B	12-01-2024	0921-5107
	Nanostructured Oxide (SnO ₂ , FTO) Thin Films for Energy Harvesting: A Significant Increase in Thermoelectric Power at Low Temperature	Micromachines	26-01-2024	2072-666X
C.S.A.Raj S. Sebastian	Unveiling the luminescence of α -Zn ₂ SiO ₄ phosphor: Profound influence of sintering temperatures	Radiation Physics and Chemistry	07-07-2023	0969-806X
S. Sebastian	Sol-gel synthesized rare earth La ³⁺ ions doped Zn ₂ SiO ₄ phosphors for lighting applications	Ceramics International	15-08-2023	0272-8842
	UV-induced photoluminescence and X-ray-induced thermoluminescence of Zn ₂ SiO ₄ : Mn phosphor	Journal of Materials Science: Materials in Electronics	15-10-2023	0957-4522
	Hydrothermal synthesis of cerium-doped Zn ₂ SiO ₄ phosphor for futuristic lighting applications	Journal of Solid State Chemistry	06-11-2023	0022-4596
B. Prakash	Effect of Bi doping on the opto-electronic properties of ZnO nanoparticles for photo detector applications	Journal of Photochemistry & Photobiology, A: Chemistry	01-09-2023	1010-6030
	Enhancement in photo sensing and photocatalytic degradation activity of Cu doped ZnO nanoparticles prepared by co-precipitation method	Physica Scripta	09-11-2023	0031-8949

Staff Activities

The staff members of PG & Research department of Physics, Arul Anandar College, actively participated and served as member in academic activities of many institution, the list of which is given below.

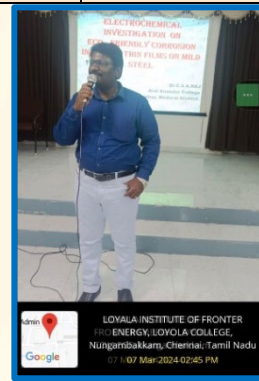
Faculty Name	Activity		Name of the Institution	Date
	Type of Activity	Topic of Activity		
Dr. K. S. Joseph Wilson	Member, Board of Studies		Sri. S. Ramasamy Naidu Memorial College, Sattur.	23/06/2023
	Member, Board of Studies		Sri. S. Ramasamy Naidu Memorial College, Sattur.	02/03/2024
	Guest Lecture	Light-Matter Interaction	Mangayarkarasi College of Arts And Science For Women, Madurai	11/09/2023
	Guest Lecture	Photonic Crystal Based Solar Cells	Loyola College of Arts & Science, Mettala, Namakkal.	27/10/2023
	Resource Person	Physics And Chemistry of Solid/Liquid Interfaces For Energy Conversion And Storage	Vivekananda College, Tiruvedakam West, Madurai.	30/01/2024
	Examiner	Research Advisory Committee	Thiagarajar College, Madurai.	01/02/2024
Dr. A. Shanmugaraju	Invited Talk	First Biennial Conference On Astronomy And Astrophysics	Indian Center of Space Physics, Kolkotta	16-21 /02/2024
Dr. S. Valanarasu	Examiner	Doctoral Committee Member	Kalasalingam University	07/12/2023
	Doctoral Committee Member		Kalasalingam University	07/12/2023
Dr. C.S.A. Raj	Resource Person	Nanophysics	Mannar Thirumalai Naicker College, Madurai.	31/01/2024
	Resource Person	Green Inhibitors For Corrosion Protection Coatings	Loyola College, Chennai	07/03/2024
	Resource Person	World Nature Day	Nature Club, Arul Anandar College	03/10/2023
Dr. S. Sebastian	Guest Lecture	Digital Electronics	Kalasalingam Academy OF Research And Education	03/10/2023
	Guest Lecture	Nanotechnology	G.T.N. Arts College	12/12/2023
Mrs. V. Buvanewari	Resource Person	புதன் விருந்து	Department of Tamil, Arul Anandar College	21/02/2024



Dr. K. S. Joseph Wilson honored by The Vice-Chancellor, Periyar University at Loyola College, Mettala



Dr. A. Shanmugaraju, in Indian Centre of Space Physics, Kolkata



Dr. C. S. A. Raj in Loyola College, Chennai.

Participation in conference and workshop

Name of the staff	Name of the conferences / workshops / seminars / webinars	Name of the institution and place	Title of the paper	Date
Dr. K. S. Joseph Wilson	3 rd International conference on Light Applications in Science and Engineering Research (LASER-2023)	Periyar University, Salem.	Device Structure Optimization of Cs ₄ CuSb ₂ Cl ₁₂ -based Perovskite Solar Cell using SCAPS 1-D	15/09/2023
	3 rd International conference on Light Applications in Science and Engineering Research (LASER-2023)	Periyar University, Salem.	Design and Analysis of Multiband Microstrip Patch Antenna with DGS for Wireless Communications	15/09/2023
	International Conference on Artificial Intelligence, Cybersecurity & Mathematical Modelling (AICMM 2023)	Loyola College of Arts & Science, Mettala, Namakkal.	Design of 1D Ternary Photonic Crystal-based Anti-Reflective Coating using Transfer Matrix Method for Solar Cells	27/10/2023
	International Conference on Artificial Intelligence, Cybersecurity & Mathematical Modelling (AICMM 2023)	Loyola College of Arts & Science, Mettala, Namakkal.	Efficiency Enhancement of Solar Cell with 1D Photonic Crystal as Back Reflector using Transfer Matrix Method	27/10/2023
	International Conference on Artificial Intelligence, Cybersecurity & Mathematical Modelling (AICMM 2023)	Loyola College of Arts & Science, Mettala, Namakkal.	Novel Maze Shape Patch Antenna using HFSS for Satellite Communication	27/10/2023
	Department of Atomic Energy - Solid State Physics Symposium 2023	Gandhi Institute of Technology and Management, Visakhapatnam	Dual band Terahertz Microstrip Patch Antenna for Satellite Communication Applications	20/12/2023
	Department of Atomic Energy - Solid State Physics Symposium 2023	Gandhi Institute of Technology and Management, Visakhapatnam	Theoretical Analysis on Graphene - Ag-MgF ₂ nanocomposite based one-dimensional photonic crystal	24/12/2023
	Department of Atomic Energy - Solid State Physics Symposium 2023	Gandhi Institute of Technology and Management, Visakhapatnam	Device Structure Optimization of Cs ₂ AgBiBr ₆ based Perovskite Solar Cell using SCAPS 1D	21/12/2023
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Terahertz Microstrip Patch Antenna Design for Medical Applications	01/03/2024

Name of the staff	Name of the conferences / workshops / seminars / webinars	Name of the institution and place	Title of the paper	Date
Dr. K. S. Joseph Wilson	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Theoretical Analysis on Transmittance Properties of Superconductor based Photonic Crystal	01/03/2024
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Numerical Analysis of 1-D Nanocomposite based Photonic crystal as Back Reflector for DSSC Applications	01/03/2024
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Optimizing RbGeI ₃ Perovskite Solar Cell Design with SCAPS 1D: A Path to Enhance Performance	01/03/2024
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Analysing Asymmetric Planar Perovskite Solar Cell with Distinct ETM using SCAPS 1D	01/03/2024
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Optimization of Cancer Cell Detection using one Dimensional Photonic Crystal	01/03/2024
Dr. A. Shanmugaraju	First Biennial Conference On Astronomy And Astrophysics	Indian Center Of Space Physics, Kolkotta	Relation Between Some Solar Energetic Eruptions And Space Weather Events	16-21 February, 2024
Dr. S. Valanarasu	Two day national seminar on Revealing next generation materials to empower green hydrogen for energy and environment applications pioneering the national hydrogen initiative	Sri Ramasamy Naidu Memorial College, Sattur	An effect of different substrate temperatures of CdSe thin films prepared using thermal evaporation technique for photodetector applications	12 - 13, October, 2023
	International conference on fundamentals and applications of nano technology	Chaveller T Thomas Elizabeth College for women, Chennai	Effect of coating temperature on CdS thin films using nebulizer spray pyrolysis method for high-performance photodetector applications	05/01/2024
	International Conference on " Fundamentals and Applications of Nanotechnology	Chevalier T.Thomas Elizabeth College Chennai - 11	Fe- Doped Vanadium Oxide Thin Film Deposited by Nebulizer Spray Pyrolysis Method for Photo sensor Application	05/01/2024

Name of the staff	Name of the conferences / workshops / seminars / webinars	Name of the institution and place	Title of the paper	Date
Dr. S. Valanarasu	International Conference on Recent Trends in Materials Science- (RTMS 2024)	Arul Anandar College, Karumathur	Tb doped WO ₃ thin films deposited by nebulizer spray technique: kinetic study on room temperature ammonia gas sensing	1 March, 2024
Dr. C.S.A. Raj	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Investigation on the aluminum doped CZTS Thinfilms	01/03/2024
Dr. S. Sebastian	International Virtual Conference On Emerging Technologies In Materials Science	Jayaraj Annapackiam College For Women	Participation	22 February, 2024
	International Conference on Recent Trends in Materials Science- (RTMS 2024)	Arul Anandar College, Karumathur	Green phosphor based on SrSnO ₃ :Ce ³⁺ synthesized by co-precipitation method for bio-imaging applications	1 March, 2024
Dr. I. Inigo Valan	Fourth International Conference on Advances in Physical Sciences and Materials (ICAPSM 2023)	KPR Institute of Engineering and Technology, Coimbatore, Tamil Nadu	Investigation of Natural Iron Oxide Materials In Photo-Catalytic Applications	17 - 18, August 2023
	International Conference on Recent Trends in Materials Science- (RTMS 2024)	Arul Anandar College, Karumathur	Analysis Of Water Quality In Ponds And Lakes In Villages Along Northern Western Parts Of Madurai	1 March, 2024
Dr. B. Prakash	Webinar On "Advancement In Supercapacitor Technology: Energy Storage For The Future"	SR University, Warangal	Participation	30th December 2023
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Synthesis and Characterization of Iron Oxide nanoparticles by Co-precipitation Method	01/03/2024
	International Conference on Recent trends in Material Science (RTMS 2024)	Arul Anandar College, Karumathur	Structural and Morphological studies on Annealed ZnO Nanoparticles	01/03/2024

Seminars / Conferences / Workshop

PG and Research Department of Physics, Arul Anandar College organized National Workshop on Crystallography on 18th July 2023. The workshop had a lecture with a live demo of analyzing a crystal by Dr. A. T. Ravindran, Associate Professor, National College, Trichy. The aim of the event is to give an exposure to the UG and PG students on the recent research in physics.



The PG and Research Department of Physics, AAC organized National Workshop on Experimental Astronomy – 2023 from 21st September 2023 to 22nd September 2023. The inauguration was conducted on 21st September 2023. Dr. A. Shanmugaraju, Head, Department of Physics, AAC served as the convener of the workshop. Dr. C.S.A. Raj, Assistant Professor in Physics, served as the organizing secretary of the workshop. The technical sessions were handled by scientists from various central government organizations, such as



Kodaikanal Solar Observatory (IIA), Kodaikanal, Indian Institute of Astrophysics (IIA), Bangalore, VSSC/ISRO, Thumba, Thiruvananthapuram. The workshop ended function on 22nd September 2023. The post-graduate students and research scholars of Department of Physics, AAC participated and benefited in this workshop. 75 participants from various academic institutions from different parts of the country participated in this workshop. The workshop was sponsored by DST-SERB - SSR scheme.

The PG & Research Department of Physics, AAC organized a workshop on Mobile Technology for the undergraduate students of AAC on 19th July 2023. Mr. M. Sathishkumar, chief Business Head, E-Carrier – Pluz Info India Pvt. Ltd., Madurai served as the resource person and explained the various opportunities and placements in Mobile technology for under graduate students. They also gave a demo on the basic working principle of mobile and basic repair process in mobile. 253 students attended the workshop and benefited from the workshop. This program is arranged in honoring of Memorandum of Understanding between the institutions.



The PG and Research Department of Physics, Arul Anandar College organized International Conference On Recent Trends in Materials Science – 2024 on 1st March 2024. The aim of the event is to give an exposure to the students and scholars about recent advancements in materials science and make them updated with scientific knowledge through lectures in the field from the internationally recognized scientists. Dr. A. Shanmugaraju, Head, Department of Physics, AAC served as the convener of the conference. Dr. C.S.A. Raj, Assistant Professor, Department of Physics, AAC served as the organization secretary of the conference. The technical sessions were handled by experts from various academic institutions, Thiagarajar College of Engineering, Madurai, SSN College of Engineering, Chennai and Keimyung University, Daegu, South Korea. The conference ended with a formal vote of thanks was by Dr. I. Inigo Valan, Assistant Professor, Department of Physics, AAC on the same day. 57 research papers were presented in the conference. The post-graduate students and research scholars of



Department of Physics, AAC participated and benefited in this workshop. 55 offline (25 Arul Anandar College participants and 30 other college participants) and 42 online participants from various academic institutions from different parts of the country participated in this conference through online and offline mode. The conference was funded from UGC-Autonomy Grant.

The PG and Research Department of Physics, AAC organized Workshop on Bio-Physics on 6th February 2024 as a part of MOU activity between AAC and G.T.N Arts College, Dindugal. Dr. T. Rajesh Kumar, Assistant Professor, Department of Physics, G.T.N. Arts College, Dindugal, delivered a guest lecture on “Biophysics applications to the society” at PG & Research Department of Physics, AAC (Autonomous), Madurai. The workshop focus is to enrich the young minds of under-graduate students from various institutions to give an exposure about Bio-Physics. Overall 97 under-graduate and post-graduate students and research scholars of Department of Physics, AAC and 30 participants from various academic institutions other college participants attended the workshop lecture and online demo. The conference was funded from UGC-Autonomy Grant.

Association Activities

The Physics association is one among the most active association in AAC. Many Programmes were conducted in the academic year 2023 – 2024 by the association

Orientation cum Fresher's Day celebration was conducted on 26th June, 2023 for the first year U.G students. Dr. C.S.A. Raj, Vice-president, Physics Association welcomed the gathering, Dr. A. Shanmugaraju, Head, Department of Physics, introduced the department and its various activities to the new students. Dr. K. S. Joseph Wilson, Former Head, Department of Physics, addressed the gathering and motivated the students to learn constantly.



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The Physics association and PG & Research Department of Physics, AAC, organized an awareness programme entitled "Awareness on Study and Research in Abroad" for Post-Graduate students of our department of 5th July, 2023, Dr. Syed Ali Kalangala Sikkanther, Science Chair, Harmony Science Academy, Dallas, Texas, USA delivered the awareness speech and gave suggestions and ideas on doing higher studies in USA. Dr. S. Saravana Kumar, Assistant Professor, Department of Physics, KARE was also associated in the awareness programme and explained the research opportunities in private funded deemed universities in India, especially in Kalasalingam Academy of Research and Education (KARE).

Inauguration of the Physics association was organized on 25th July 2023 for the academic year 2023-2024. Dr. C.S.A. Raj, Assistant Professor, Department of Physics, AAC- the association vice-president nominated Ms. Jayashri Devadarshini as the students secretary of the Physics association.

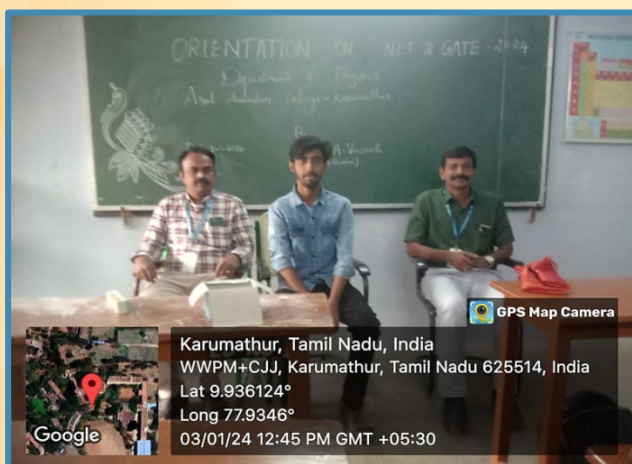
Physics Association organized a skill enhancement cum Carrier orientation programme on 25th August 2023. Dr. K. Moovendran, Post-Doctoral Research Fellow, Centre for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan gave a research talk on Low temperature physics and gave a research video demo to the students and explained the research opportunities in European and South east Asian countries.



Teachers day celebration was organized on 5th September 2023, Dr. A. Shanmugaraju, Head, Dr. K.S. Joseph Wilson, Former Head and the staff members and students of the Department of Physics, AAC celebrated the function.



In the view of the Chandrayan 3 launch, the physics association arranged an awareness programme for the undergraduate students to celebrate the success of Chandrayan mission. The programme was conducted on 13th September 2024. Dr. A. Shanmugaraju, Head & Associate Professor, PG and Research Department of Physics, AAC gave the introductory speech, 3 undergraduate students of AAC gave scientific talks on the Chandrayan mission.



Physics association organized an awareness programme entitled “Awareness on physics competitive examination”, Mr. S. Vasanth, (2020-2022 M.Sc., Physics student) – 2023 GATE candidate explained the various ways to clearing the examination based on his personal experience.



Physics association organized a guest lecture on ‘Commercialization of Lab and Tech Transfer’ for undergraduate and postgraduate students of the PG & Research Department of Physics, AAC. Dr. A. Alexander, Assistant Professor, Department of Physics, St. Joseph’s College (Autonomous), Tiruchy delivered the talk on 19th January 2024.

Intra Departmental Competition – INTRA is an annual event having many physics based competitions conducted by the students of the physics department for the students of physics department. In the academic year 2023-2024, the INTRA 2024 was conducted on 30th November 2023. Students actively participated and the prizes were distributed through the Physics association.



Two PG students Anjana B. Suresh and Anjith. C. N. from Kerala got State government project by the guidance of Dr.K.S.Joseph Wilson

PHYSAAC - 2024 was organized on 6th February 2024 in Diraviam Arangam, AAC. PHYSAAC is an academic cultural event having physics based competitions. Students from Eight colleges from various districts of Tamil Nadu participated in the event. Fatima College of Madurai District won the overall prize. The event was organized by the students of Department of Physics through Physics association.

Farewell day celebration was organized on 23rd March 2024 for the final year UG and PG students. Dr. K. S. Joseph Wilson, Former Head & Associate Professor, Department of Physics, AAC motivated the students for their higher studies and blessed to have a prosperous future. Dr. A. Shanmugaraju, Head, Department of Physics, AAC, advised the students to use their time properly to prosper in life. Dr. C.S.A. Raj, Physics Association – Vice-President & Assistant Professor, Department of Physics, AAC gave the welcome note and Vote of thanks for the farewell function and formally closed the activities of the Physics association for the academic year 2023-2024.

Ms. Angel Arun and Mr. Prem kumar, 2002-2005 B.Sc., Physics batch alumni of the Department of Physics, AAC, motivated the undergraduate students to pursue higher education in Physics. The student discussion was arranged in III B.Sc., Physics class room at 12.30 PM, 15th March 2024. The alumni encouraged the III B.Sc., 2021-2024 Batch students (Current Batch) to join M.Sc., Physics and explained the benefits of doing Post graduation in Physics. On behalf of the department Dr. K. S. Joseph Wilson introduced the alumni to the students. Dr. A. Shanmugaraju thanked the alumni. 37 students from IIIrd year B.Sc., physics undergraduate students benefited by this program.



Student Activities

The Under-graduate and Post-graduate students of PG & Research department of Physics were engaged in many department and college cultural activities. The UG & PG students participated in many cultural competitions in other colleges and won many prizes. The research scholars of the department participated and presented research articles in many international conferences in India and in foreign countries.

Ms. S.M. Satya, Research Scholar gave a pre-viva presentation for her doctoral degree (Ph.D.) on 23rd June 2023 to the PG and Research Department of Physics, Arul Anandar College in the presence of the doctoral committee members.

A research seminar was given by Ms. J. R. Sofia, Research Scholar, PG & Research Department of Physics, Arul Anandar College, Madurai, on 12th January 2024.



Mr. S. Aswin Amirtha Raj, Research Scholar, PG & Res. Dept of Physics, AAC, attended IAU symposium in IRAP, Krakow, Poland during 6-10 May 2024.



Mrs. Vijayalakshmi, Research Scholar, PG & Res. Dept of Physics, AAC, attended NASA 4th Eddy Cross Disciplinary Symposium at Colorado, USA on 29 Oct - 3 Nov 2023.

CONGRATULATIONS

Mr. N. Yogeswaran, 2nd M.Sc., Physics Student, was selected and participated in KSO winter school at Kodaikanal Solar Observatory, IIA-Kodaikanal from 3rd-10th January, 2024.

Mr. Akash Kumar & Ms. Christina of 1st M.Sc., Physics students won 1st prize in SCI-FEST 2K24 - Intercollegiate physics meet held at Mannar Thirumalai Naicker College, Madurai, on 7th March 2024.

Mr. S. Mark Tony I, B.Sc., Physics student won 3rd Prize in Meme Creation Competition at Phyxpllosion'23 - Intercollegiate meet held at Lady Doak College, Madurai, on 15th September 2023.

Mr. Jayaganthan, II, B.Sc., Physics student won 3rd Prize in Quiz Competition on Indian Constitution held at Fatima College, Madurai, on 20th October 2023.

Mr. G. Sakthivel, III, B.Sc., Physics student won 2nd Prize in Treasure hunt Competition at Phobos'24 - Intercollegiate meet held at The American College, Madurai, on 19th January 2024.

Mr. S. Vishnuvardhan, Mr. S. Mark Tony, Ms. Jayashri Devadarshini & Mr. Marudhubalaji, B.Sc., Physics students won 3rd Prize in Anything Open Competition at Phobos'24 - Intercollegiate meet held at The American College, Madurai, on 19th January 2024.

Mr. P. Muthu Ganesan, III B.Sc., Physics, won 1st Prize in Golden Jubilee - A V Tilak Intercollegiate Quiz Competition held Fatima College, Madurai on 13th February, 2024.

Mr. P. Muthu Ganesan, III rd B.Sc., Physics, won 2nd Prize in State Level Intercollegiate Quiz Competition (INCOQU'24) held at St. Xavier's College, Palayamkottai on 16th February, 2024.



Industrial Visits and Educational Trip

In the academic year 2023- 2024, two Industrial visits and one educational tour were arranged for the Under-graduate and Post-graduate students of the Physics department. The students actively participated and benefited from the industrial visit.



➤ An industrial visit to National Laboratory -Central Electrochemical Research Institute (CECRI), Karaikudi was arranged on 26th September 2023 for the Post-Graduate students of Department of Physics, AAC.



➤ On 1st December 2023, an industrial visit to

Kodaikanal Solar Observatory, Kodaikanal was arranged for the Under-Graduate and Post-Graduate students of Department of Physics, AAC.

➤ An educational tour to VSSC, Thumba and ISRO, Trivandrum, was arranged to the final year UG and final year PG students of Department of Physics, AAC, on 19th March 2024.

Alumni Association

PG & Research Department of Physics, AAC, organized two alumni association meetings and one selection monitoring meeting for Physics student fellowship – 2024 (sponsored by 2002-2005 alumni). Alumni working in various organizations belonging to Government sector and Private sector actively participated in meetings in the academic year 2023-2024.

The PG and Research Department of Physics, AAC organized a Physics Alumni Meet on 2nd October 2023. The aim of the event is introducing and establishing a firm contact between the alumni of Department of Physics, AAC.

Dr. A. Shanmugaraju, Head, Department of Physics, AAC welcomed the gathering. Seventeen alumni of the department participated and shared their own experience during their study period in the college and explained how it helped them to grow in the society.



Ten alumni member of 1997 B.Sc., Physics batch of Department of Physics, AAC visited the department and shared their experience in studying physics in AAC and explained the carrier opportunities to the UG and PG physics students.



The students of 2002-2005 B.Sc., Physics batch alumni of the Department of Physics, AAC, is rendering monetary support to the economically poor students to pursue their education in Physics in AAC. Ms. Angel Arun and Mr. Prem Kumar, representatives of 2002-2005 B.Sc., Physics batch alumni monitored the selection process, on behalf of the department Dr. K. S. Joseph Wilson introduced the alumni to the students Dr. A. Shanmugaraju, Associate Professor & Head, presided the selection process & thanked the alumni.