

J.J. College of Arts and Science (A), Pudukkottai-622 422

PG and Research Department of Physics

The PHI Club of the Department of Physics, J.J. College of Arts and Science (Autonomous), Pudukkottai conducted a one-day Webinar programme for UG and PG Students on 17th July 2020.

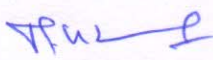
Dr. K. Muthu Kumar National Post-doctoral Fellow, Department of Physics, NIT, Tiruchirappalli, delivered a lecture on “ Green Synthesis of Bio- Nanoparticles and its Applications”. In this lecture he explained the basic concepts of nanoparticles

During the past few decades, antibiotics have made great contributions to human and veterinary medicine through their antimicrobial properties and as growth promoters in animal husbandry. On the other hand, anthropogenic bacterial activities and organic dye-effluents are newly emerging causes of aquatic pollution that pose a threat to public health. Environmental pollution due to population growth, industrial activities, global climate change, poor rainfall, unimproved sanitation, poor hygiene and water quality deterioration aggravated. How steadily in the past few decades. Most of the antibiotics cannot be completely absorbed in human and animal bodies and eventually enter the sewage system in the form of a feces and urine.


Research concerned with the bio-synthesis of NPs and NCs are important avenues in the field of nanotechnology (Low-costs, avoiding toxic chemicals and eco-friendly techniques are than be the chemical or/and physical methods. Recently, green processes using biological products such as microorganisms, fungi, plant leaves, sea grass, and sponges, provide eco-friendly and viable alternatives .Macro algae are easily available and have applications in traditional medicine.

Finally he clarified the doubts of the students

Earlier Ms. A. Jenifer, II- M.Sc. Physics welcome the gathering, Ms. S.Meenakshi II-M.Sc. Physics proposed the vote of thanks. Dr. M. K. Murali, Head, Department of Physics presided over the programme.


Dr. M.K. MURALI, M.Sc., M.Phil., Ph.D
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Dr. J. PARASURAMAN, M.A., M.B.A.,
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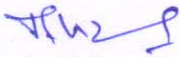
The PHI Club of the Department of Physics, J.J. College of Arts and Science (Autonomous), Pudukkottai conducted a guest lecture programme for UG and PG Students on 03rd September 2020

Dr. M. Rajamoorthy gave a scholarly lecture on the Principles of Physics in *Thirukkural*. He pointed out that even 2000 years ago, Thiruvallvar found the reason for cavities in the moon, without the help of scientific instruments. He had acknowledged the meteoroid shower on the moon. In Kamathupal, he has scolded these incidents. He wrote about the reversible mechanism in Arathupal, a theory similar to Newton's third law of motion— *for every action there is an equal and opposite reaction*.


The speaker suggested that Thiruvalluvar had established several glossaries of Physics and also illustrated ample evidence in *Thirukkural*, of physical concepts well known even two millennia ago by the people of Tamilnadu.

Finally he clarified the doubts of the students

Earlier Ms. A. Jenifer, II- M.Sc. Physics welcome the gathering, Ms. S.Meenakshi II- M.Sc. Physics proposed the vote of thanks. Dr. M. K. Murali, Head, Department of Physics presided over the programme.


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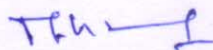
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Guest Lecturer Programme

The Department of Physics, J.J. College of Arts and Science (Autonomous), Pudukkottai arranged a special lecture programme on Friday 17.12.2021. **Dr. J. Raj Mohamed, Assistant Professor, Department of Physics, H.H. The Raja's College, Pudukkottai.**

Dr. J. Raj Mohamed delivered a speech on 'Thin Film Deposition using Modified Spray Pyrolysis Techniques'. Nebulized spray pyrolysis is a simple and cost effective technique for the preparation of In_2S_3 thin films. In_2S_3 compound thin films were deposited on glass substrates at substrate temperatures from 200 to 350 °C in steps of 50 °C by nebulized spray pyrolysis technique. These films were shiny, thin and uniform, which were evidenced by specular reflections of white light due to multiple internal reflections of coherent rays. They were characterized by X-ray diffraction (XRD), optical transmittance, scanning electron microscope imaging (SEM), energy dispersive analysis by X-rays and electrical conductivity. Cubic structure with preferential orientation along (111) plane was observed from XRD analysis. SEM analysis revealed that all the films have no voids and cracks. Direct band gap values were found to decrease up to 2.69 eV with increase in substrate temperature from 200 to 300 °C, but increased further, whereas the indirect band gap values were found to increase up to 2.14 eV with increase in substrate temperature from 200 to 300 °C, and decreased further. All the films were found as n-type semiconductors. The resistivity of all the samples decreased with increase in substrate temperature. A maximum carrier concentration value of $7.36 \times 10^{18} \text{ cm}^{-3}$ was obtained for the film grown at substrate temperature of 300 °C. The carrier mobility was increased up to 86.2 cm^2/Vs by increasing the substrate temperature from 200 to 300 °C and then it decreased to 17.6 cm^2/Vs at a substrate temperature of 350 °C.

Dr. K. Dhanabalan, Assistant Professor of Physics, presided over the meeting. R. Sri Vaishnavi and R. Ragi Krishna, I M.Sc. Physics welcomed the gathering and M.K. Hima I M.Sc. Physics proposed the vote of thanks.



Head of the Department

Dr. M.K. MURALI, M.Sc., M.Phil., Ph.D
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Principal

Dr. J. PARASURAMAN, M.A., M.B.A., M.F.
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Guest Lecturer Programme

The Department of Physics, J.J. College of Arts and Science (Autonomous), Pudukkottai arranged a special lecture programme on Thursday 23.12.2021. **Dr. A. Balamurugan, Assistant Professor, Department of Physics, Government Arts and Science College, Avinashi.**

Dr. A. Balamurugan delivered a speech on “Nonlinear dynamics: Chaos in secure communication”. Non –linear dynamics is the branch of physics that studies systems controlled by equations which are high complex than linear one. Such systems are unpredictable in nature. These are used to study acoustic waves, electrical transmission, and electronic communication systems. It deals soliton and chaos. Chaos is the study of how simple patterns can be generated from complicated underlying behaviour. This chaos theory helps us to understand patterns in nature. It has been used to model biological systems, which are the most chaotic systems imaginable. This chaos is aimed to provide security in the transmission of information performed through telecommunications technologies.

Dr. M.K. Murali, Head and Assistant Professor of Physics, presided over the meeting. R. Ragi Krishna and , I M.Sc. Physics welcomed the gathering and Kayalvizhi III B.Sc. Physics proposed the vote of thanks.

M.K. Murali

Head of the Department

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