



ST. XAVIER'S COLLEGE (AUTONOMOUS)
PALAYAMKOTTAI - 627 002
(Recognized as "College with Potential for Excellence" by UGC &
Accredited by NAAC at A++ Grade with a CGPA of 3.66 out of 4)



ANNUAL REPORT 2022-2023
MATERIALS RESEARCH CENTRE

In charge: Dr. D. Prem Anand

Materials Research Centre, Department of physics promotes and coordinates research activities in the field of crystal growth and its characterizations, nanomaterial, polymer science, and irradiation effect on solids. It is utilised by the research scholars from other colleges also. The energy meter assembled temperature reduction method (micro-controlled based) is used by the Research Scholars who do their research on crystal growth, nanoscience, and polymer. At present Mr. P Ajith, Mr. M. SappaniMuthu, Ms. J. Agnes, and Mr. A. Caroll Xavier are working as full-time scholars. During this academic year, 2022-2023 ten research articles were published in reputed journals.

Mr. P. Ajith has published two research articles on optical, and electro chemical performance of selenium decorated reduced graphene oxide assisted (CoSe_2) nanoparticles for oxygen reduction reaction.

And Solvothermal synthesis and characterization studies of selenium decorated reduced graphene oxide supported CuSe_2 nanoparticles as efficient electrochemical catalyst for oxygen reduction reaction in Indian Journal of Chemical Technology (IJCT),

➤ Mr. Sappani Muthu has published three articles on Characterizations and Antibacterial Studies of Chromium trioxide Nanoparticles. International Journal for Modern Trends in Science and Technology, Antibacterial Activity of Copper Oxide Nano Particles against Gram Positive And Negative Bacterial Strain synthesized By Precipitation Technique in International Journal of Zoology and Applied Biosciences, 2022 and One pot synthesis, Structural, morphological, Optical Properties of Graphene Oxide/ NiO Nano composite suitable for super capacitor Applications. YMER, 21,2022.

➤ Ms. Agnes has published three articles: "Synthesis and characterization of chitosan encapsulated nickel oxide nanoparticles modified with folic acid" in *Materials Today*:

Proceedings, 2022: “Preparation and characterization studies of chitosan encapsulated ZnO nanoparticles modified with folic acid and their antibacterial activity against selected bacterial species in Particulate Science and Technology” <https://doi.org/10.1080/02726351.2022.2145587>; and “Preparation and Characterization of Chitosan-Encapsulated Cobalt Oxide Nanoparticles Modified with Folic Acid in Journal of Inorganic and Organometallic Polymers and Materials”, <https://doi.org/10.1007/s10904-022-02521-8>,2022.

➤ Mr. Caroll Xavier has published an article on “Synthesis, and antibacterial activity of Aluminium Oxide Nanoparticles” in Journal of Xi’an Shiyou University, Natural Science Edition” 18(04):263-267, April 2022.