

CHEMICAL ENERGY CONVERSIONS AND APPLICATIONS (CHECA)

IKOHZA TEAM (RESEARCHERS):

Assoc Prof. Dr. Kamyar Shameli, Associate Professor, Head of ikohza
 Prof. Dr. Mohamed Mahmoud El-sayed Nasef, Professor
 Assoc Prof. Dr. Roshafima binti Rasit Ali, Senior Lecturer
 Dr. NurFatehah Wahyuni binti Che Jusoh, Senior Lecturer
 Dr. Nurulbahiyah binti Ahmad Khairudin, Senior Lecturer
 Ts. Dr. Vekes A/L Balasundram, Senior Lecturer
 Dr. Zatil Izzah binti Ahmad Tarmizi, Senior Lecturer

NUMBER OF STUDENTS

- Ph.D : 16 students
- Master: 12 students
- Bachelor: 19 students

RESEARCH KEYWORDS

- Nanoscience and Nanotechnology
- Functional Polymeric Materials, Membranes, Radiation Grafting
- Homo/Heterogeneous Catalysis, Photo Catalyst
- Renewable Energy, Biomass for Biofuels Production
- Environmental Green Chemistry
- Molecular Simulation, Structural Bioinformatics
- Drug Delivery, Biomedical Science

OUTLINE OF IKOHZA

The Chemical Energy Conversions and Applications (ChECA) research laboratory is dedicated for the promotion of research on sustainable energy development via the application of fundamentals of chemical energy conversion reactions and development of new materials to enhance their efficiency. Our research involves development of variety of functional materials and advanced systems such as nanocomposite catalysts, photo-devices, functional membranes to develop sustainable energy and store it in various forms by fuel cells, biomimetic devices, and photovoltaic systems.

CURRENT RESEARCH

RESEARCH1: INDUSTRIAL GRANT

Efficient method for production of nanocellulose based membrane fiber supported by copper nanoparticles for preparation of high-performance air filters (Total: RM100,000)



RESEARCH 2: FRGS MOHE GRANT

Unravelling the Effect of Gold Nanoparticles with Chitosan Nanobubbles through Double Emulsion Technique as Anticancer Drug Delivery System (Total: RM116,098)



RESEARCH 3: INDUSTRIAL GRANT

Novel Integrated Technique of Acidic and Base Catalyst in Microalgae Pyrolysis for 3G Aviation Biofuel Production: Resolving COVID-19 Impact on Global Airline Industry (Total: RM105,000)



RESEARCH 4: GOVERNMENT GRANT

Synthesizing the Bio-based Fibres Flame Retardant (FRs) using Gamma Radiation Method Incorporated Nano Metals as Additive (Total: RM20,000)



• **RESEARCH 5: INDUSTRIAL GRANT**

Magnetic-base Modified Palm Kernel Shell Biochar Adsorbent in Resolving Langkat River Water Pollution (Total: RM 15,000)



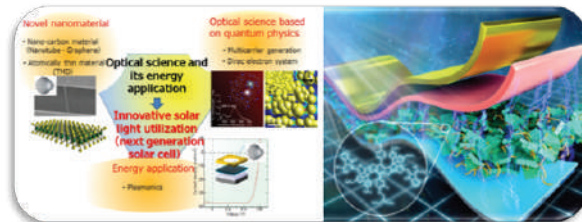
• **RESEARCH 6: INDUSTRIAL GRANT**

Pullulan mediated copper nanoparticles synthesis and its catalytic activity in degradation of dyes (Total: RM 10,000)

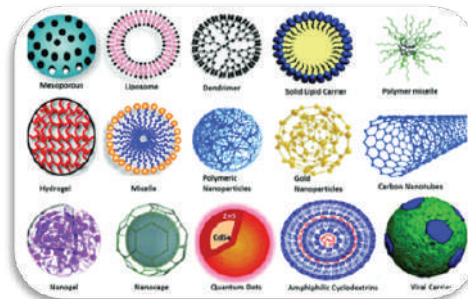


MERIT OF THE TECHNOLOGY

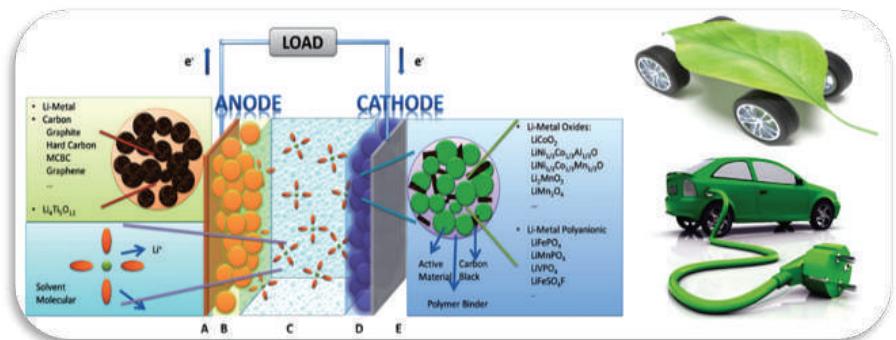
1) Sustainable Energy Development by Functional Materials



2) Nanoscience and Nanotechnology



3) Green Energy Production, System and Application



POSSIBLE INDUSTRY APPLICATION

- Physicochemical characterization and analysis of materials using advanced analytical instruments.
- Consultation with highly skilled experts in related fields.
- Implementing semi-industrial and industrial projects and performing quantitative and qualitative analysis in research related to energy conversion, nanomaterials & nano-drug production, fuel cells, and also special polymers.
- Performing quantitative and quantitative laboratory control tests to confirm the quality of the product.

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