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Ph.D. (Durham University)

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EXPERTISE
Electrochemistry, Sensor technology

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Dr. Ruzniza's research areas involve development and application of electrochemical sensors for detecting chiral mole-cules of importance in medical, pharmaceutical and environmental monitoring. This entails coupling nanomaterials and molecular or biomolecular recognition involving host-guest type interactions to electrical transducers that will gen-erate a signal that is proportional to the target analyte concentration. The chiral recognition can be obtained with or without the presence of chiral selector, depending on the target analyte enantiomers. Major sponsors of Dr. Ruzniza's research include the Fundamental Research Grant Scheme (FRGS) and Putra Grant.

CURRENT RESEARCH INTERESTS:

- **Chiral Sensors.**

Chiral recognition and discrimination between enantiomers are becoming increasingly important for future tech-nology because most important chiral substances are bio-related molecules and their sensing properties contribute to pharmacy and biotechnology industries. The necessity for differentiation of very slight differences in molecular structure is very interesting to discover using an 'intelligent' chiral sensor to assure a highly sensitive, enantioselective analysis of various biological systems.

- **Nanocomposite Hybrid Materials.**

The integration of nanomaterials such as graphene, carbon nanotubes and other metal nanotubes, nanowires, nanoparticles, nanosheets and nanorods with biomolecules such as enzymes and collagen, as well as polymers, organ-ic-inorganic nanohybrids and various mesoporous materials, will lead to nanocomposite hybrid materials that combine the properties of the two components and yield materials of new functionalities. This leads to better electrocatalytic activity of the sensoric device to differentiate chiral compounds in a racemic mixture.

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LINK TO POSTGRADUATE FIELD OF STUDY:
Analytical chemistry, Material Sciences, Sensor Technology

ADDITIONAL INFORMATION

- https://scholar.google.com/citations?user=koW2eU8AAAAJ&hl=en
- https://www.researchgate.net/profile/Ruzniza_Mohd_Zawawi
- http://profile.upm.edu.my/ruzniza/profile.html