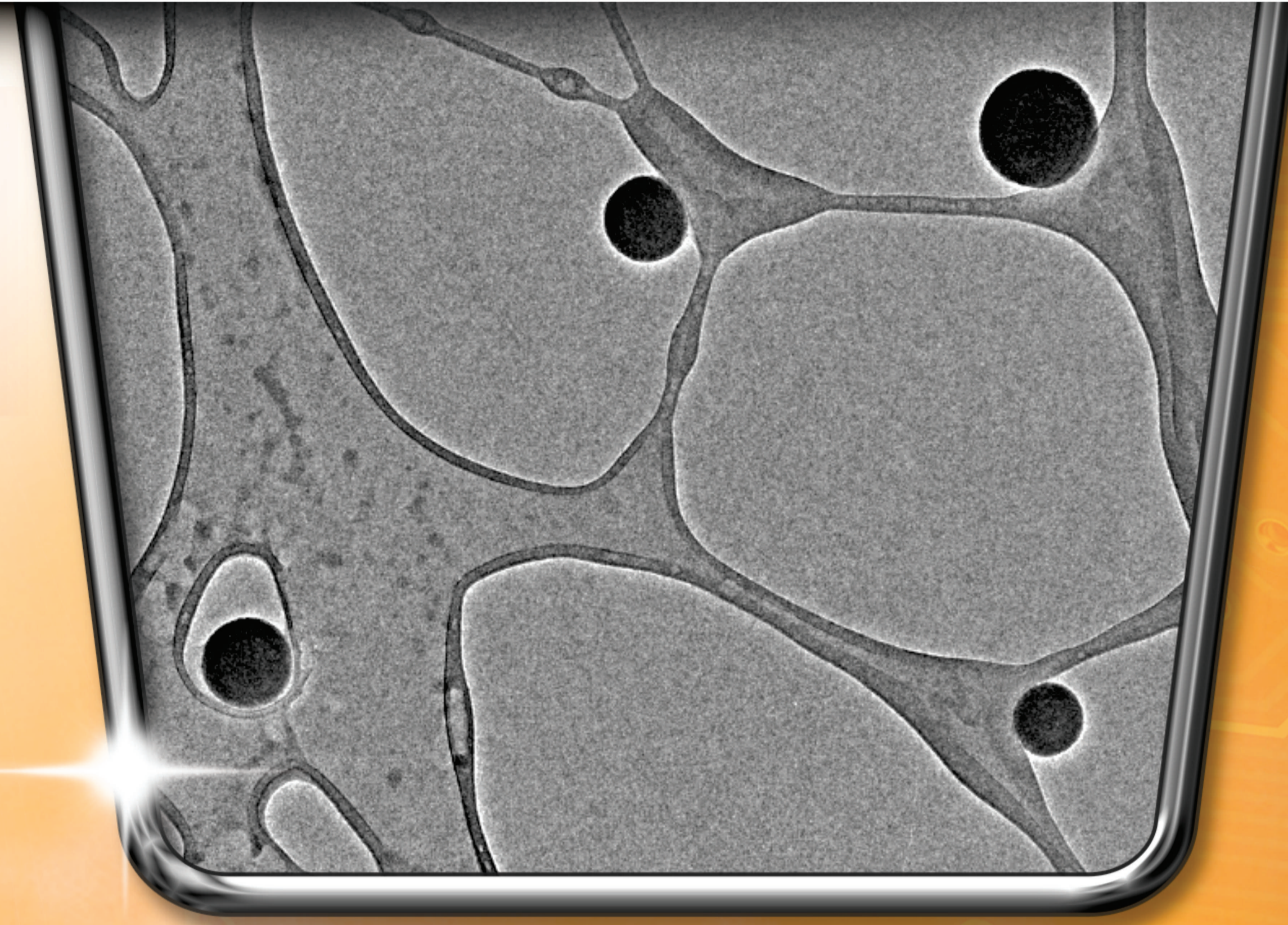


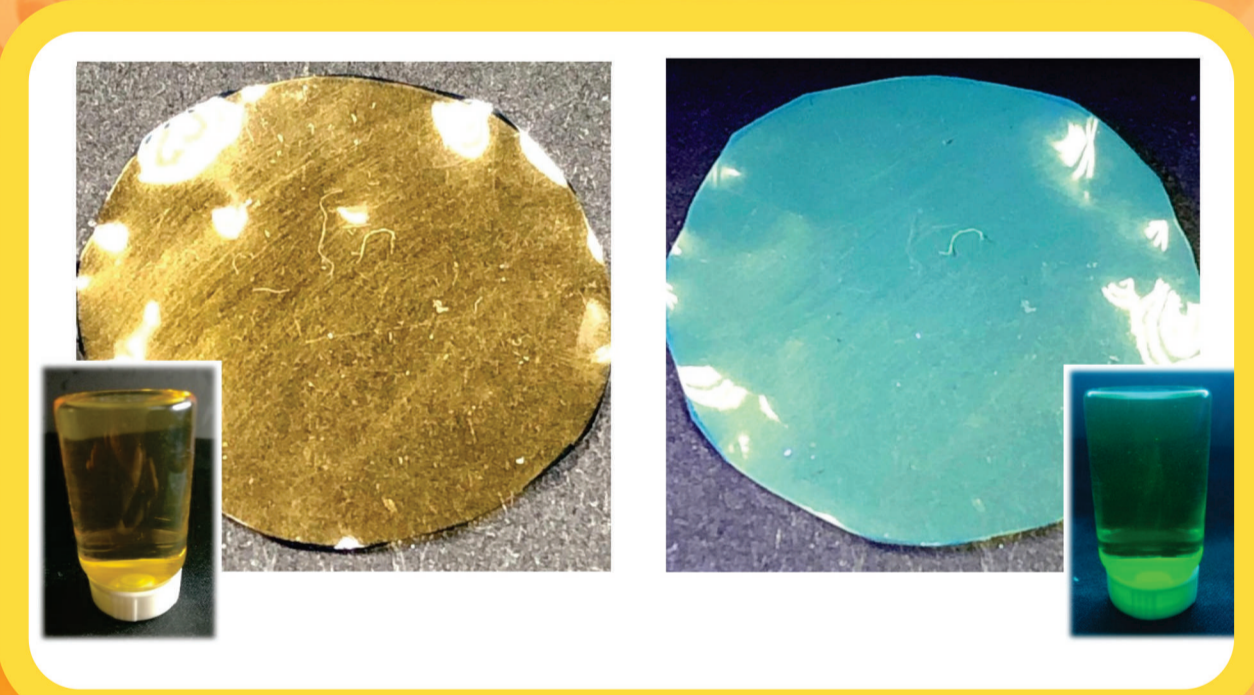
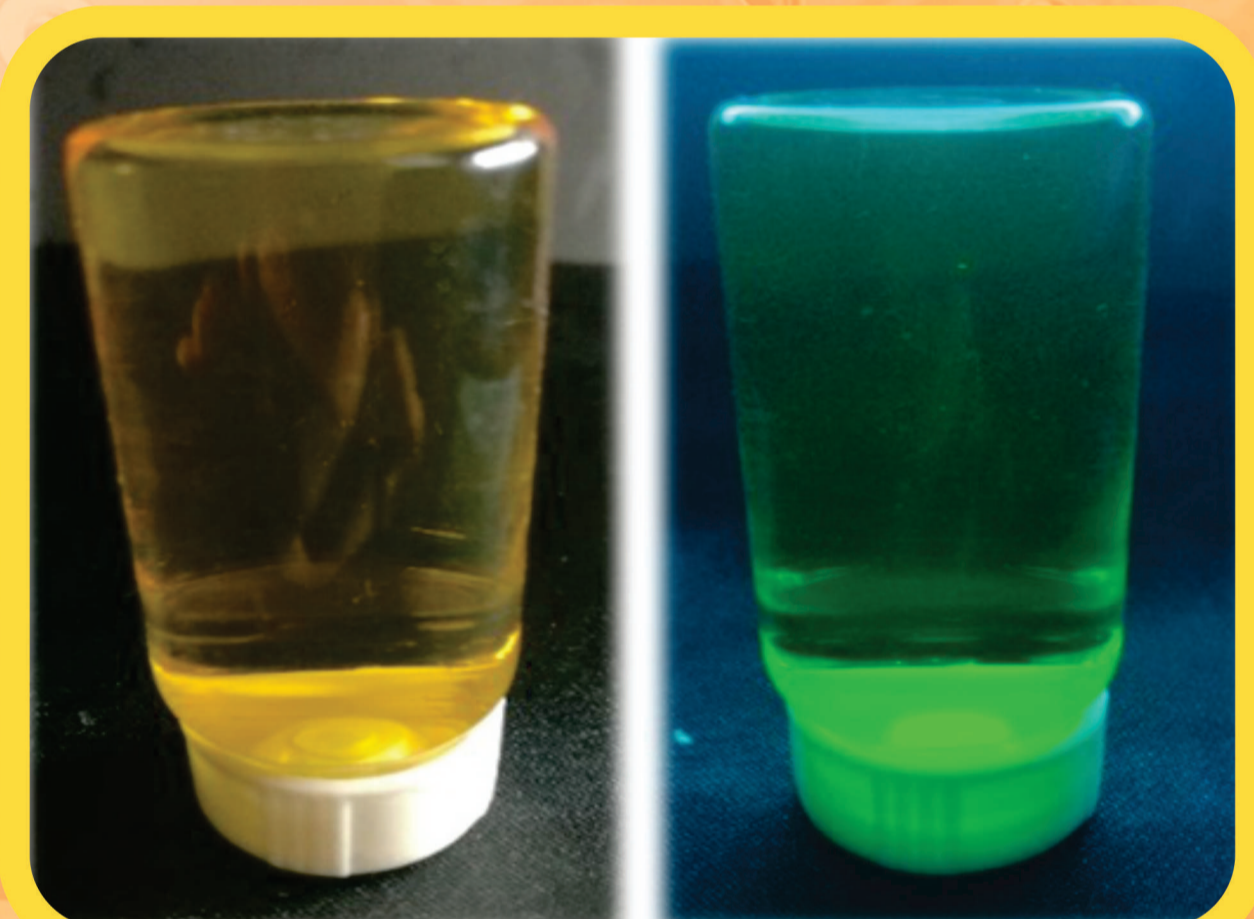
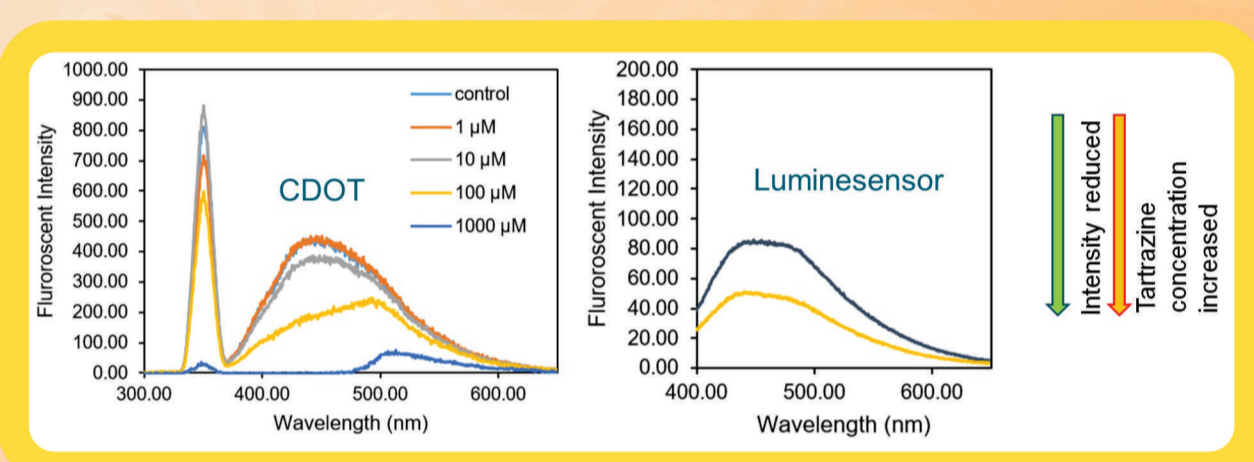
Researchers:

ASSOC. PROF. IR. DR. LEO CHOE PENG
Melvin Ng Hau Kwan
Dr. Lim Gin Keat

▶ **TRADE SECRET (TS/IO/2019/049)**



LUMINESENSOR



Luminesensor is a photoluminescence sensor incorporating carbon quantum dot in biodegradable thin film. It can detect food colorant, tartrazine with concentration as low as 10 μM using photoluminescence spectroscopy without any other chemical.

Novelty & Inventiveness

- Accurate and quantitative measurement
- Simple dip and scan
- Affordable
- Biodegradable materials
- Small and thin like a coin
- On-site measurement
- Data storage

Applicability

- Heavy metals (Fe^{3+} , Cu^{2+} , Hg^{2+} , Ag^+ , Cr^{6+}); Low-molecular weight thiols (glutathione and cysteine); Glucose; Nitroaromatic explosives; Drugs; Vitamins; Pesticides;

Product/Technology Readiness

- TRL 4, complete prototype testing in laboratory

Research Achievement

- 1 international grant (Royal Society)
- 4 related publications
Progress in Organic Coatings 132 (2019) 70-75 (ISI IF: 3.420)
Colloids and Surfaces A: Physicochemical and Engineering Aspects 578 (2019) 123590 (ISI IF: 3.131)
Journal of Environmental Chemical Engineering, In press, DOI: [10.1016/j.jece.2019.103187](https://doi.org/10.1016/j.jece.2019.103187) (Selected for Publication)
Carbohydrate Polymers, Submitted. CARBPOL-D-19-03771
- 1 Best Poster Award

Intellectual Property

- Trade Secret

Commercialization Potential

- Food and beverage, healthcare, chemical industries and more.

Level of Impact:

- Green Chemistry - Eliminate harmful chemicals and expensive equipment used in water, soil and food analysis
- Science Outreach - Reach the bottom billions and rural communities with limited access to analytical chemistry
- Big Data - Allow data mining and storage for environmental protection, humanity and economy grow

Other Strength

- Industrial Partner, Borregaard AS from Norway

Contact Person:

ASSOC. PROF. IR. DR. LEO CHOE PENG

School of Chemical Engineering, Engineering Campus
Universiti Sains Malaysia, Penang, MALAYSIA

Tel: +604-599 6425 Fax: +604-599 6908 E-mail: chcpleo@usm.my