



Investigation of New Nanomaterials and New Methods for Radiation Detection

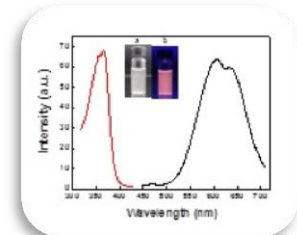
UTA (13-14)

Technology Need:

Terrorist activities within the United States have been placing threats of nuclear weapons and radiological dispersal devices (dirty bombs). Nuclear waste leakage from nuclear plants also endangers the environment and people. Contaminating drinking water with radioactive materials, like Uranium, is one of the severe attacks by terrorist and also the worst possible consequence of nuclear waste leakage. Health risks from ingesting contaminated water could lead to irreversible toxic damage to kidneys, and cancers. Traditional radiation detection methods, like gamma radiation detectors, some crystal scintillators and quantum dots, either have lower power to detect radiation or are not suitable for detection in liquid. These methods are unable to perform effectively and efficiently in drinking water system and other liquid environments.

Solution/ Offering:

Researchers at UTA have developed a novel and potent Cu-Complex nanomaterial with very high X-ray luminescence quantum efficiency that provides the power to detect radiation efficiently. A new method of radiation detection is developed using Cu-complex nanomaterial through monitoring the singlet oxygen produced. With this promising new nanomaterial and new method of practical radiation detection, the sensitivity and reliability of radiation detection in liquids and drinking water system can be significantly enhanced.



Value Proposition:

- ✓ Novel Nanomaterial
- ✓ Strong and practical Radiation Detection
- ✓ Easy to produce and inexpensive

Industrial application:

- ✓ Homeland Security
- ✓ Nuclear Waste Leakage
- ✓ Drinking Water Security

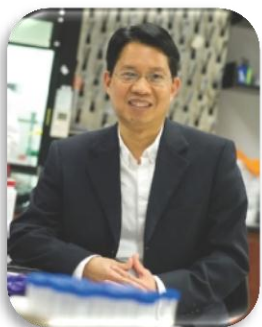
Patent Status:

- ✓ Patent Application:
[WO/2015/017378](https://patents.google.com/patent/WO/2015/017378)

Current Stage:

- ✓ Prototype

Meet the Inventor



Dr. Wei Chen received his Ph.D. in Chemistry in Peking University in 1992. He currently is a professor and director of center for security advanced via nanotechnology in department of physics at UTA. Dr. Chen has more than 180 publications and citation more than 5000 times. His research expertise is nano-bio physics.

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