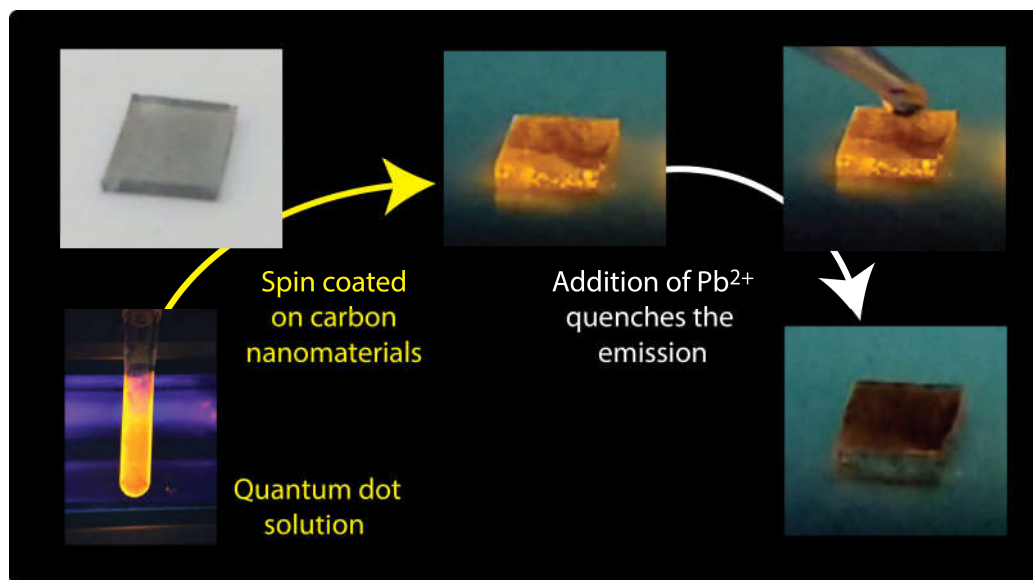


## Luminescence – based Lead Sensor



Government surveys reveal lead poisoning in Indian cities is spiking well over even the lenient established standards of 50 ppb (WHO directs 10 ppb as an upper limit). It is imperative for the general masses to be aware of the harmful contaminants present in their food and water. Our invention envisions on accomplishing just that by equipping citizens and industries with an inexpensive and eco-friendly sensor.

A novel composite film comprising of water soluble semiconducting nanoparticles (quantum dots, QDs) and indigenously prepared carbon nanosheets have been prepared. In the presence of  $Pb^{2+}$  ions, a thin film of the composite exhibits radical fluorescence quenching, easily observable by the unaided eye. The underlying mechanism is quite powerful and capable of detecting as low amounts as 0.4 ppb and is rapid.



The invention further promises the ability to identify a few other heavy metal ions. It empowers the common man with this valuable knowledge and consequently can save millions of lives in Indian alone.

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