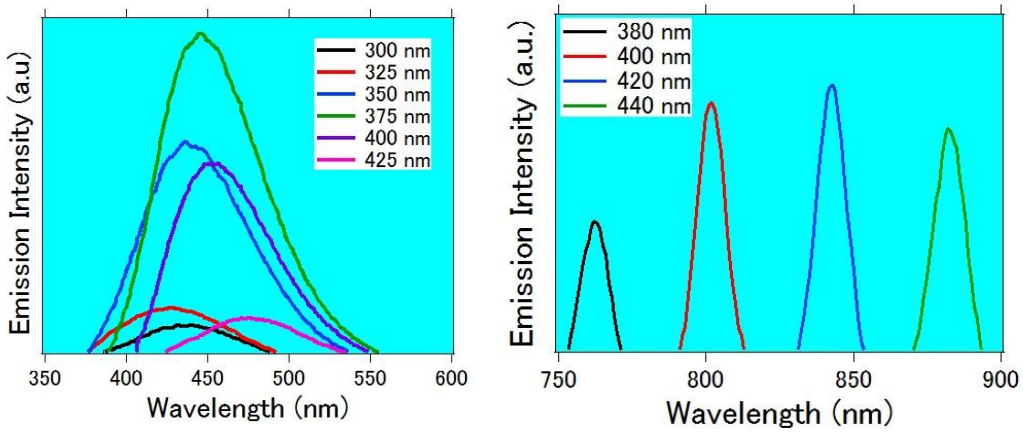
Silicon Quantum Dots

1. Apply to silicon based solar cell
2. Bio-medical imaging (cancer cell image, antigen antibody reaction, protein analysis, cell tracking etc…)
3. Apply to silicon photonics, quantum dot transistor, quantum dot LED, quantum dot laser, quantum dot computer etc…
4. A few Å to few nanometer in size.
5. Quantum efficiency 20-30 % (we will still pursue for higher quantum efficiency)
6. Water base (organic solvent base silicon quantum dot is under development)
7. Exhibits visible and infrared emission light simultaneously
8. Light, thin, flexible semiconductor, display or functional device can be prepared with printing technique.
9. No toxic and environmentally friendly quantum dot (silicon based)
10. It is the first time in the world for silicon quantum dot commercialization since we developed low cost synthesis procedure for silicon quantum dots (generally, expensive procedure such as plasma CVD, high temperature, high vacuum machine is necessary).



Emission spectra of silicon quantum dots

(wavelength number in the figure indicates the excitation wavelength)

Silicon quantum dots under UV light

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