

### Synthesis of metal and metal oxide nanocrystals with controlled sizes and shapes

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Over the last 30 years, the synthesis of metal and metal oxide nanocrystals has been intensively studied, not only for their fundamental scientific interest, but also for their many catalytic applications. Because catalytic reactions occur on the surface of the nanocrystals, development of the synthetic route to size and shaped controlled nanocrystals is important for high catalytic activity. In this presentation, I'll first show the synthesis of Pt, Pd, Pd/Pt core/shell, and PdFe alloy nanocrystals for the development of advanced electrochemical catalyst for direct methanol fuel cell. Next, I'll present synthesis and Li-battery application of metal oxide nanocrystals with various sizes and shapes.