

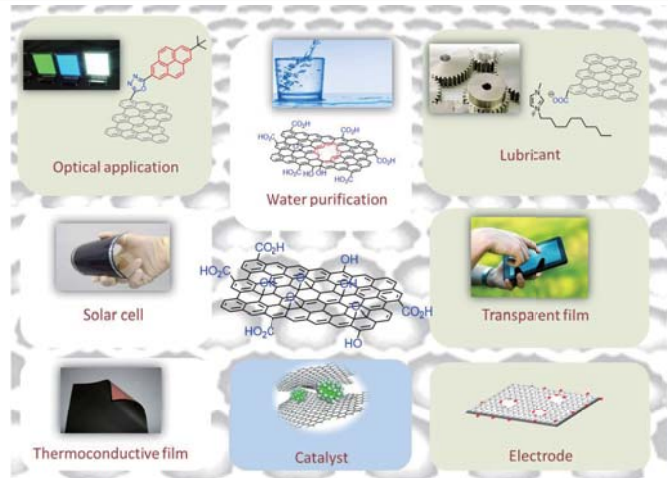
# Structure control of graphene oxide

Dr. Yuta Nishina

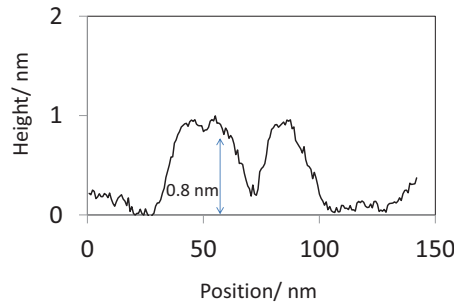
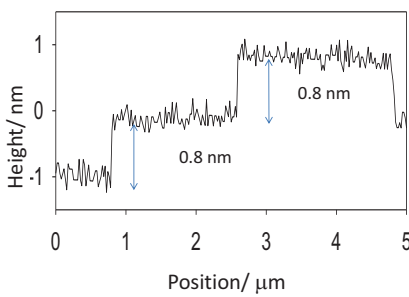
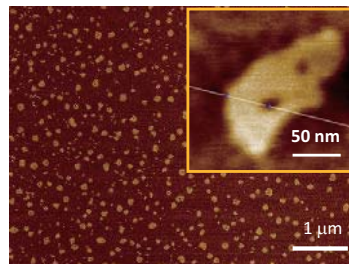
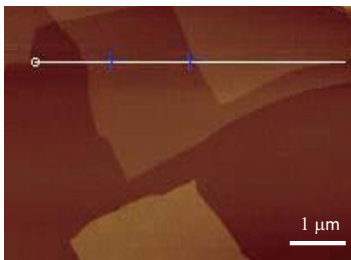
Okayama University, RCIS

## Graphene Oxide

- Water soluble
- Single layer
- Oxygen functionality
- High surface area
- Mechanically strong

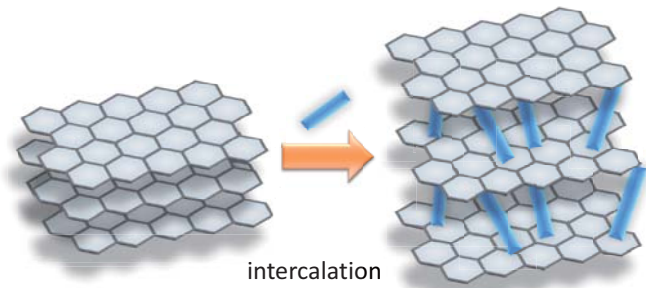


## Size Control



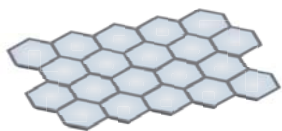
100 nm – 50 μm graphene oxide can be prepared by changing the oxidation conditions and nature of graphite.

## Interlayer Distance



Interlayer distance can be controlled by adding surfactants or organic functionalization of graphene oxide surface.

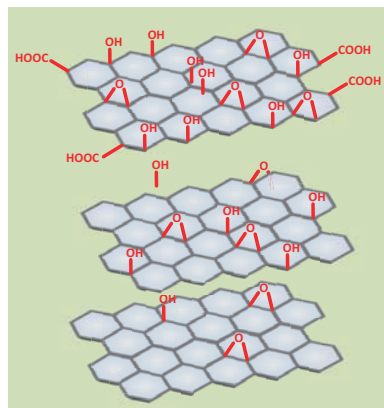
## Oxidation Degree



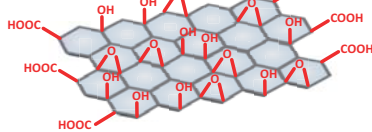
Graphite



Oxidation

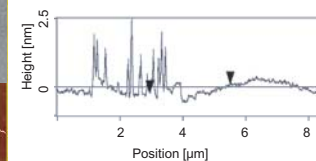
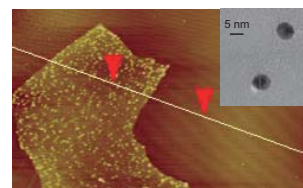
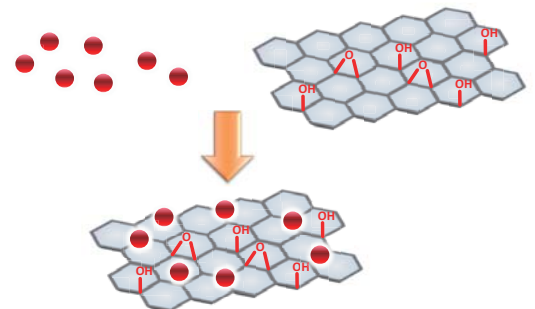


Reduction



Graphene Oxide

## Metal Composites



Oxygen content can be controlled by changing the oxidation conditions of graphite or reduction conditions of graphene oxide.

Metal nanoparticles can be deposited on graphene oxide and used as catalyst and electrodes.