

# pH-Responsive Nanosheets

## The Problem

Man-made adaptive systems such as the polymer brush are limited in functionality. To extend these structures to applications such as drug delivery and other advanced applications, it is necessary to be able to execute more complicated and controlled movements in response to stimuli.

## The Solution

The controlled pH-responsive rolling and unrolling of the nanosheets makes it possible to perform sophisticated functions, such as, carrying a large load and delivering it to a target.

## Applications

- Smart-drug delivery
- Bio-sensing
- Catalysis

## Keywords

pH sensitive, biocompatible, smart material, drug delivery, reversible shape transformation, catalysis, bio-sensing, nanoscroll, nanocomposite

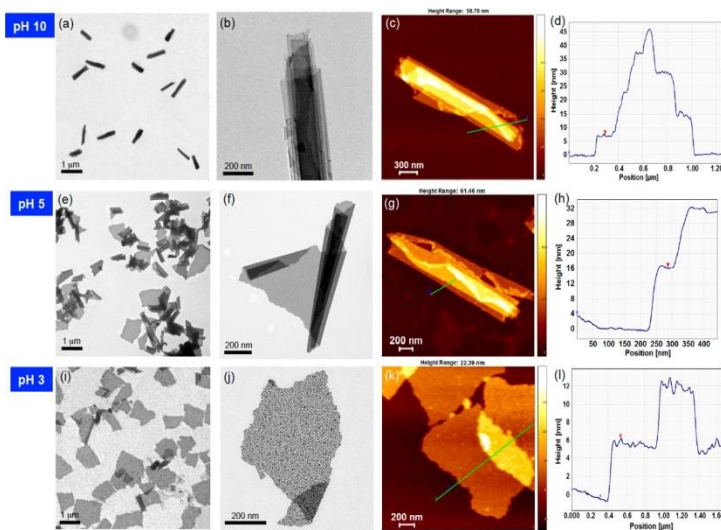
## Opportunity

- Licensing
- Collaborative research

## Patent Granted

## For more information

Technology Licensing Section at [bdtl@oist.jp](mailto:bdtl@oist.jp) or +81-(0)98-966-8937



Optical micrographs, AFM scans and AFM profiles of pH-responsive nanosheets at pHs of 10, 5 and 3. As the pH is increased from 3 to 10 the sheets roll-up into scrolls, which have different optical properties and can be used to carry a load.

## Benefits

- Bio-compatibility
- Reversible scrolling
- Size-tunability