Aichi / Nagoya Cluster【Environment-friendly manufacturing using Nano-Technology】

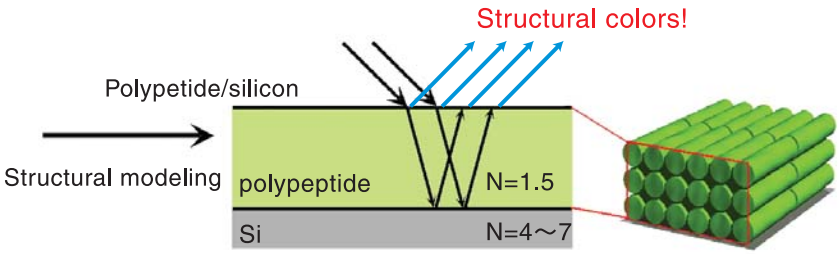
# High Functional Organic-Inorganic Nano-Hybrid Materials

# Visual sensing system for environmental and bio-related materials

Department of Materials Enginieering
Nagoya Institute of Technology　Professor　Takatoshi Kinoshita

## Objective

**We provide handy detection of a trace of chemicals and germs , like litmus paper , with bio-inspired structural color system.**




Schematic picture of structural color plate

**Feature**

Construction of organic / inorganic nano hybrid mimicking the surface structure of living systems

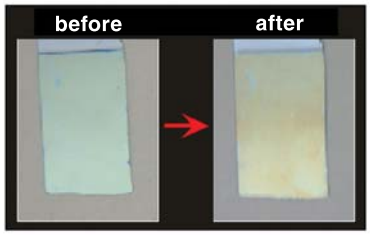
## Results

**The structural color plates sense the harmful chemicals by their color changes like litmus paper**　Patent submitting

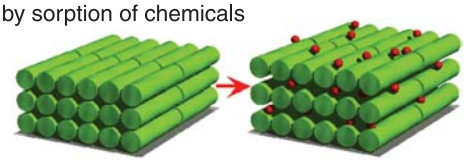
Nobel sensor tips

an example

Color change induced by the sorption of *p*-nonylphenol, an Endocrine disruptors




Schematic illustration of increasing the thickness by sorption of chemicals



**Feature**

Color changes from green to yellow when the concentration is 230 ppb
Visual sensing is possible at ppt concentration for Endocrine disruptors

## Industrial applications

**Construction of visual sensing system for harmful chemicals**

In progress

Preparation of tips for target chemicals
＋
Quantitative estimation based on the color change by a spectroscopic method

**Feature**

Visual sensing of a target molecule in the mixed unknown with high sensitivity

Future plan

Construction of visual sensing systems for Sick-buliding stuffs, Endocrine disruptors and Bacteria etc.

INQUIRY

**Kinoshita Laboratory　Nagoya Institute of Technology**
E-mail kinoshita.takatoshi@nitech.ac.jp
Web http://nitzw.mse.nitech.ac.jp/kinol/index_top.htm [in Japanese]

**Aichi Science and Technology Foundation Cluster headquarters**
E-mail cluster@astf.or.jp
Web http://www.astf.or.jp/cluster/　[in Japanese]

※Used recycled paper（Issue Jan. 2005）