Theme : Near-infrared Sensor Materials

- Sub Theme : New Organic Molecules with Strong and Selective Near-infrared Absorption

Visible image sensors are being extensively used in current mobile phones. Recently, detection of the near-infrared (NIR) light has been considered as emerging technologies due to its application to mobile biometric sensors such as iris scanner and 3D-depth sensors, etc. Further, the integration of two image sensors (visible and NIR) is highly demanding for realizing color images and depth information, simultaneously, which is beneficial for the future compact and multifunctional mobile platform. Hybrid stacks of NIR photo-detectors on the conventional color image sensors have been proposed as one of the promising approaches to realize this concept. Therefore, the development of new materials characterizing strong absorption in NIR region is preferentially required to selectively absorb the NIR light from the top layer and perfectly transmit the visible light to the bottom image sensor.

We are aiming to find new materials with strong and selective NIR absorption. Through innovative ideas with unprecedented materials system we would like to overcome limitation of present mobile image sensor technologies.

- Novel photoconversion system with organic or hybrid materials featuring highly selective NIR absorption (900-1000nm) as well as high transparency in visible wavelengths.
- The materials that could be formed by vacuum thermal deposition.
- Innovative concepts for stacked architectures for visible and NIR sensing.

※ The topics are not limited to the above examples and the participants are encouraged to propose original idea.

※ Funding : Up to USD $200,000 per year