

since 2016 **MRG**

MINAMI LAB.

[Applied Supramolecular Chemistry]

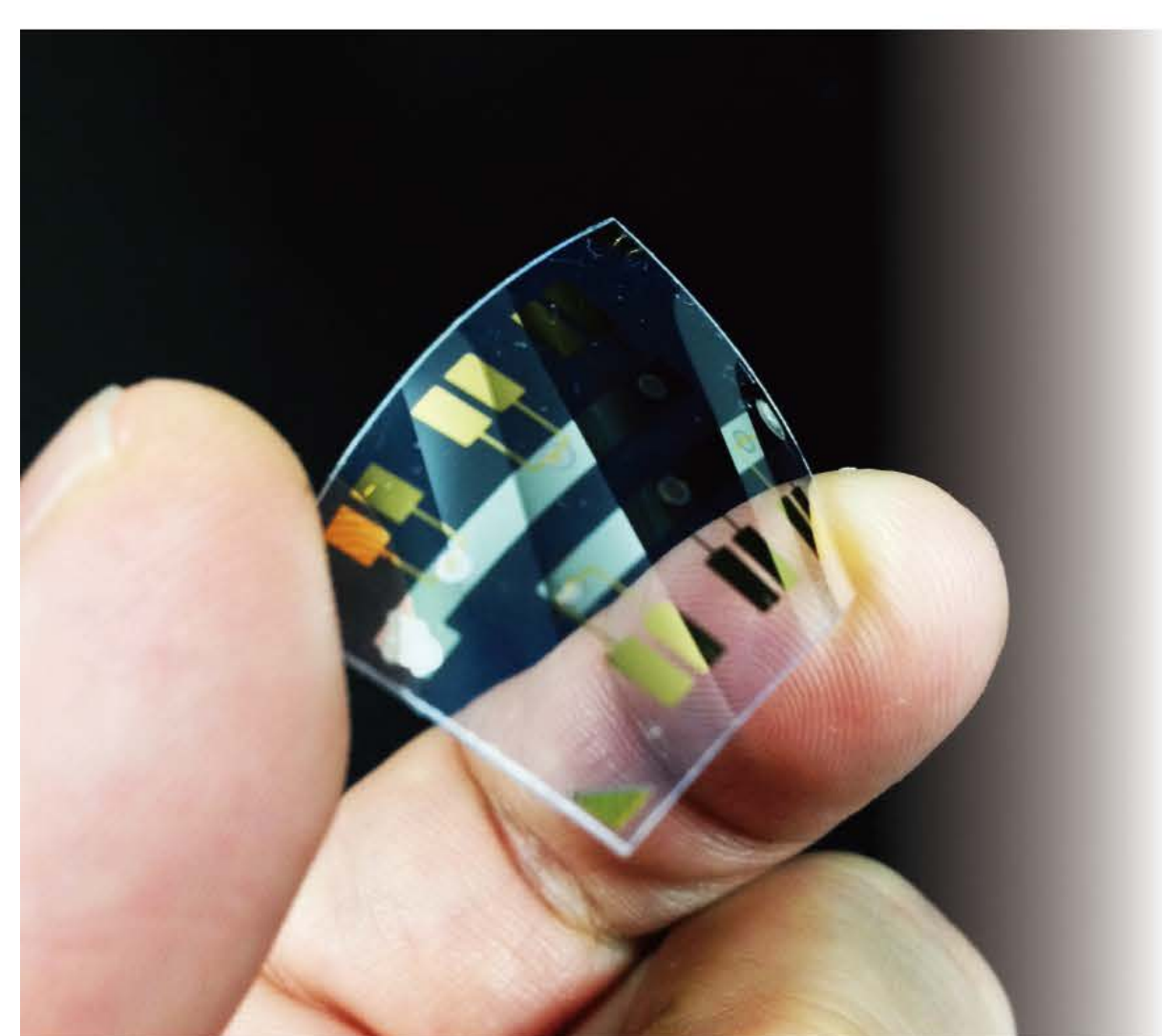
Department of Materials and Environmental Science
Supramolecular Materials Design

Department of Chemistry & Biotechnology

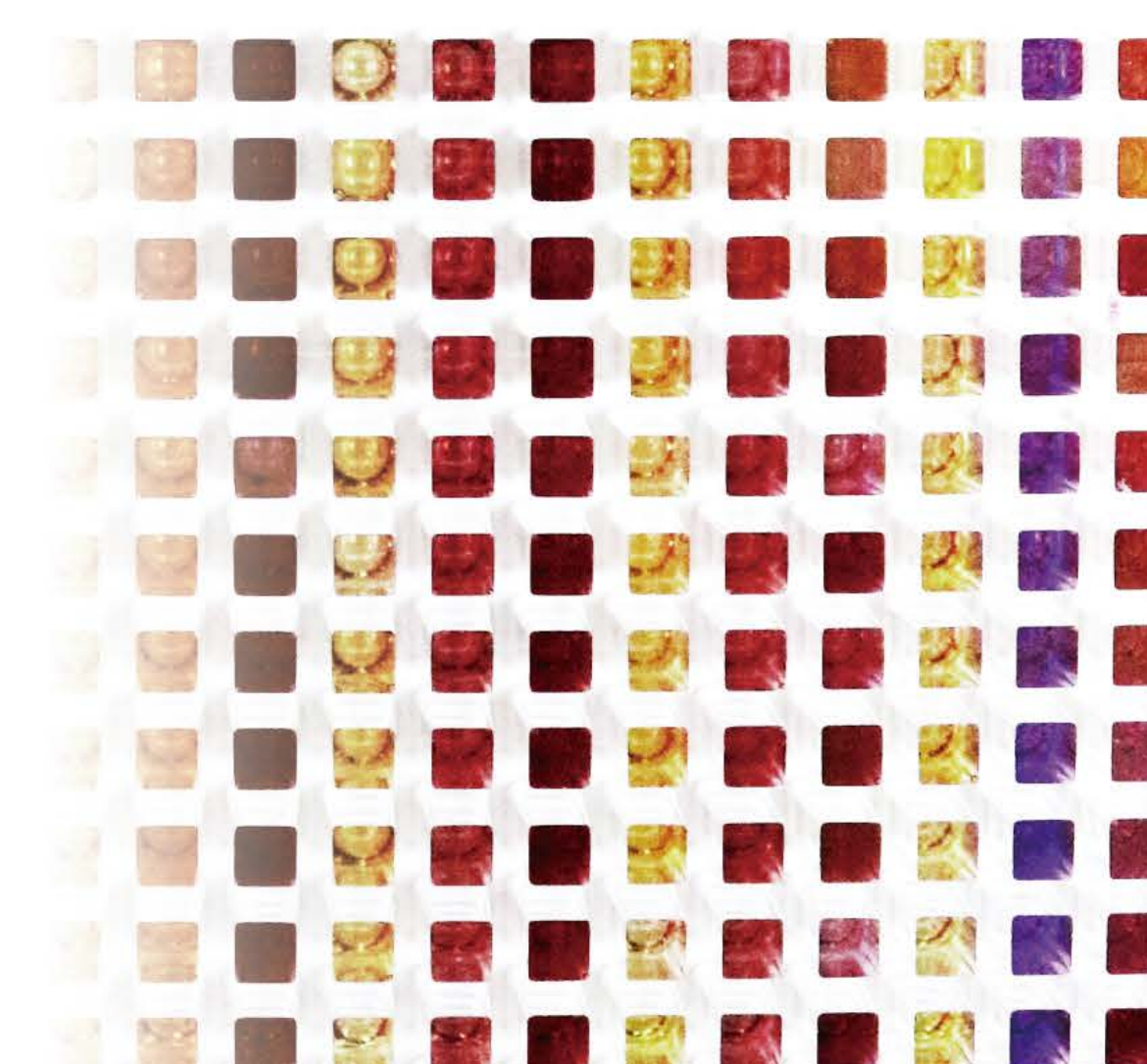
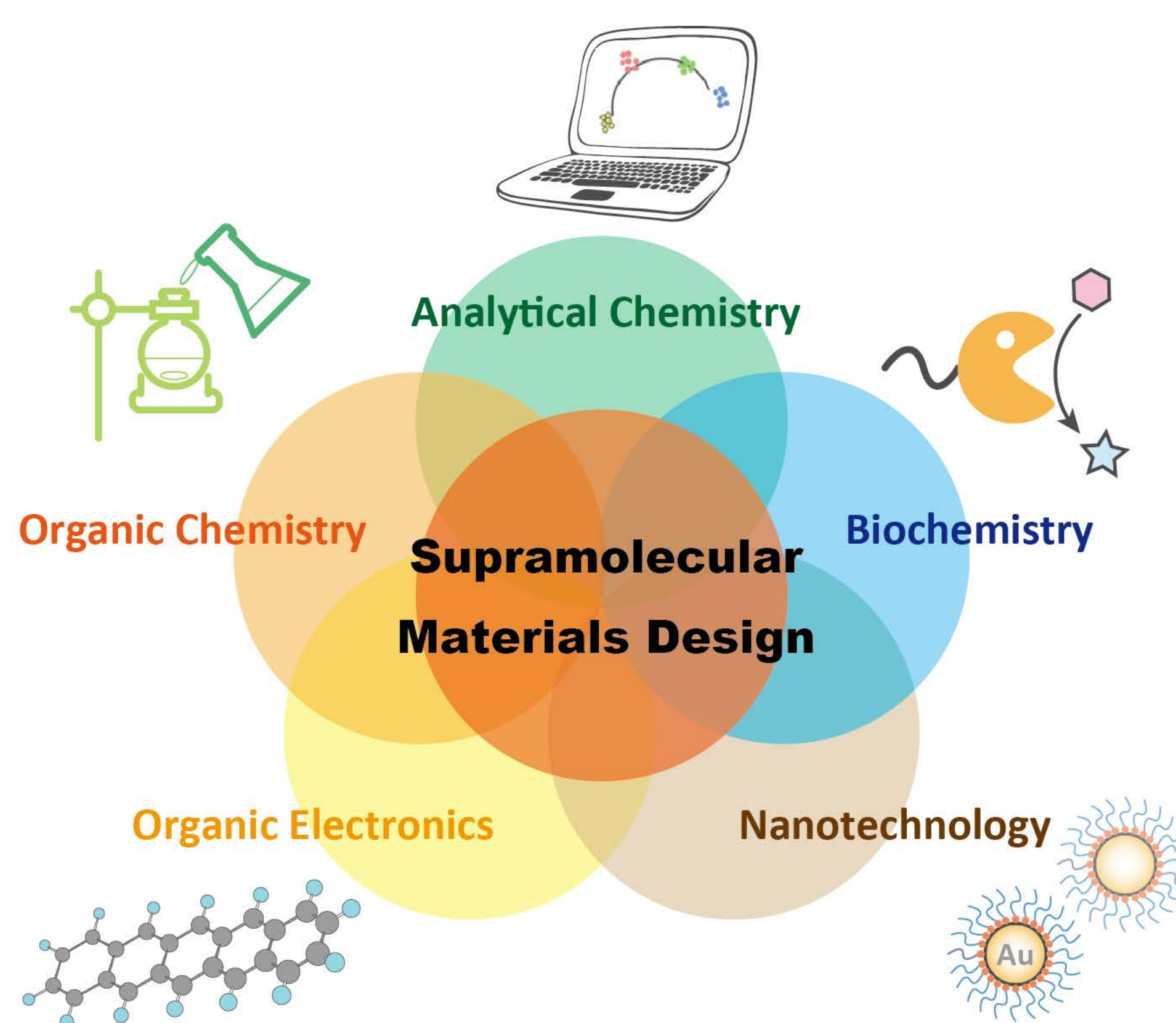
Department of Advanced Interdisciplinary Studies

<http://www.tminami.iis.u-tokyo.ac.jp/en/>

"Visualization" of Molecular Functions



**Organic Transistor-based
Chemical Sensor**

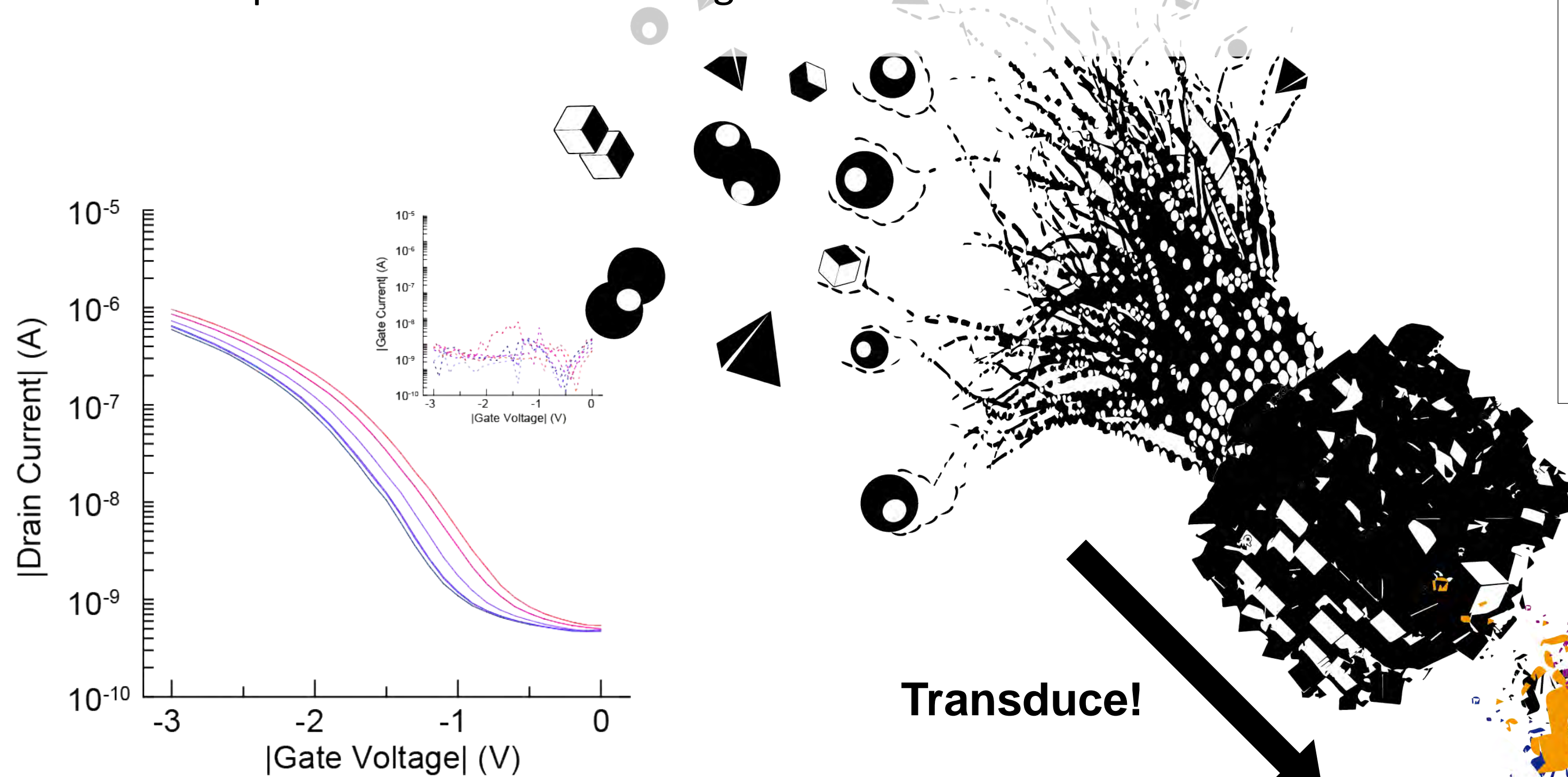


Chemosensor Array

Our group is devoted to the applied supramolecular chemistry. The previous works of supramolecular chemistry mainly concentrated on fundamental research to show some capability of this field, and the recent progresses suggest such chemistry to be well-poised in making significant contribution to various research fields. Among the well-known application of supramolecular sensors, the detection of biologically important species or pollutants can be noted. To be harnessed for rigorous analytical assignments, we work on molecular design and synthesis of materials as well as device fabrication.

Construction of Molecular Recognition Sites for Target Analytes

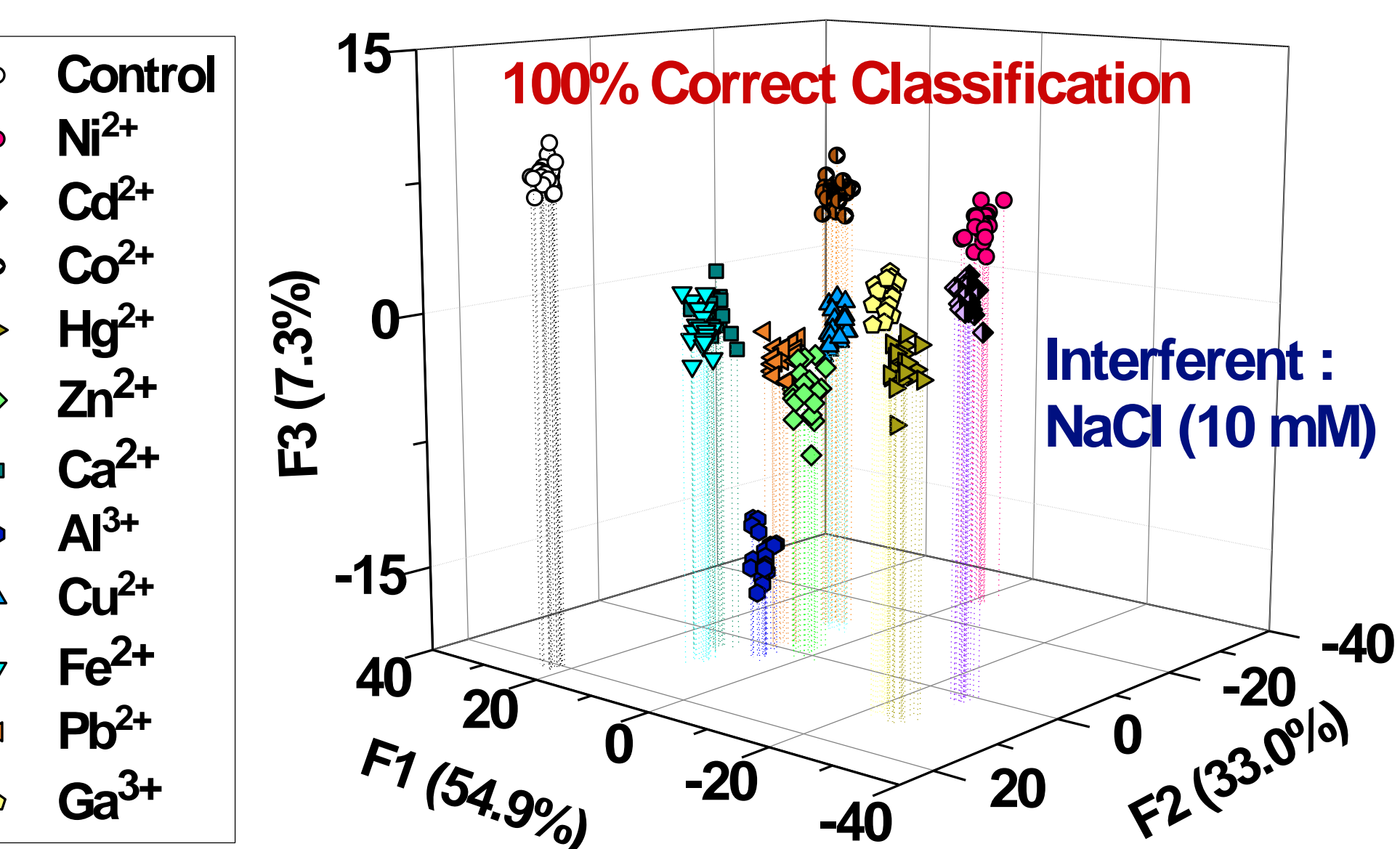
To capture target analytes in aqueous media, we design and synthesize novel artificial receptors and molecular recognition sites.



Ex. : Electrical Detection of monosaccharides using an organic transistor.

Transducers for Information of Molecular Recognition

In the realm of electronics, organic thin-film transistors (OTFTs) are some of the most interesting devices owing to their flexibility, solution-processability and ultra-small thickness. In this regard, we are developing OTFT-based chemical sensors functionalized with artificial receptors.



Ex. : Molecular self-assembled colorimetric chemosensor array for simultaneous detection of metal ions

Multi-analyte Detection Methods

Our main goal is developing of supramolecular sensor arrays with multi-analyte recognition ability and highest classification rate. With that in mind, we especially focus on simultaneous analysis of multi-analytes in biological fluids or environmental samples.