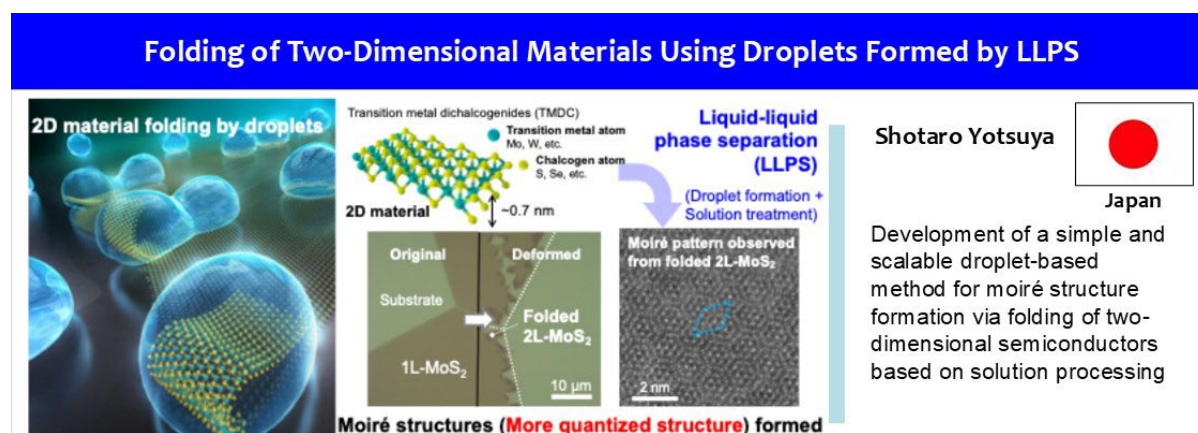


<Research Topics>

Folding of Two-Dimensional Materials Using Droplets Formed by LLPS

ICYS Research Fellow Dr. Shotaro Yotsuya



■ Research

My research explores new ways to control atomically thin two-dimensional semiconductor materials by taking inspiration from natural folding processes found in biological systems. Using liquid droplets, I developed a method to fold transition metal dichalcogenides (TMDC), enabling structural modulation of materials that are otherwise difficult to handle mechanically. Folding not only improves their potential performance as electronic devices but also allows control over moiré structures arising from interlayer alignment. I am currently investigating how folding-induced one- and zero-dimensional structures can be integrated into two-dimensional materials to create novel quantum architectures.

■ Comments

I am honored to have been appointed as an ICYS Research Fellow through the JSPS Young Researchers Employment Support Program. With the enhanced research support provided by this program, I am keenly aware of the high expectations placed on my work and am committed to pursuing my research with strong independence and motivation. In the field of two-dimensional materials, the availability of world-class, high-quality hexagonal boron nitride synthesized at NIMS represents a significant advantage for my research. By collaborating closely with my mentor and other researchers at NIMS, I look forward to further advancing my research activities.

■ Link

<https://www.nims.go.jp/icys/research/#YOTSUYA>