

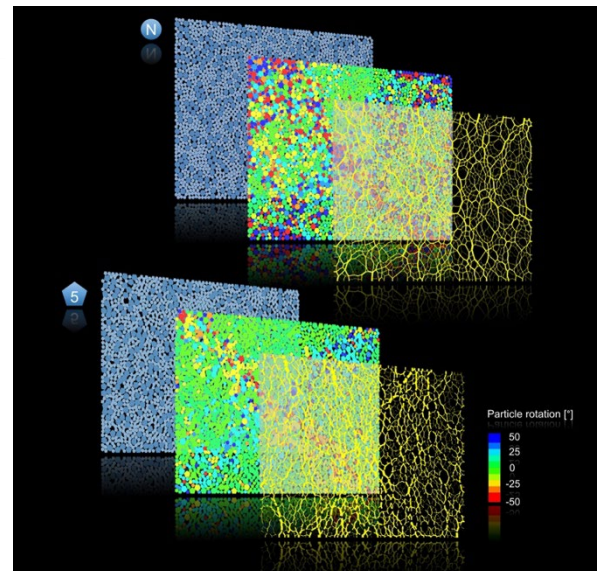
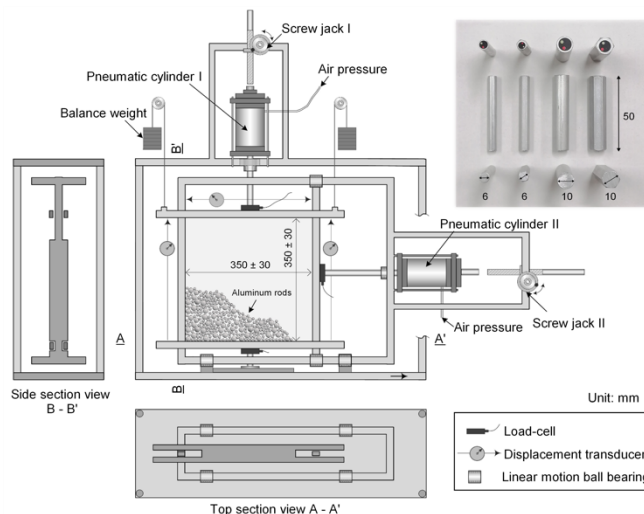


# Microscopic Particle Responses and Macroscopic Stress-Strain Characteristics of Soils

**Prof. Mamoru Kikumoto – Yokohama National University**

Mamoru's research centers on studying the stress-strain characteristics of geomaterials, with a particular focus on modeling granular materials within the continuum mechanics framework. This encompasses intricate phenomena such as particle crushing.

As constitutive models for soils have advanced, it has become evident that soil particle shapes evolve due to processes like crushing, weathering, and erosion. Understanding this evolution and its impact is a crucial research objective. In recent years, Mamoru has conducted experiments (left fig.) and analytical studies (right fig.) to explore how soil particle shapes change due to crushing and assess their influence on soil's mechanical behavior. In his presentation, Mamoru will share findings from his recent research. The experiments aim to provide insights into individual soil particle behavior during shearing and illuminate how differences in particle shape can influence soil's macroscopic mechanical response.



Friday 13<sup>th</sup> October 2023, 12:15 – 13:00 Room 2041 Building U4;

Mamoru is a Professor of Geomechanics at Yokohama National University, Japan. He earned a Bachelor's degree in 2000, a Master's degree in 2002, and a Ph.D. in 2005 from Kyoto University. He served as a JSPS fellow from April 2005 to Mar. 2008, including a year visiting fellow at the University of Bristol in the UK. From April 2008 to March 2012, he was an assistant professor at the Nagoya Institute of Technology. Subsequently, he became an associate professor at Yokohama National University from April 2012 to Dec. 2021, and in 2022, he was appointed as a professor. Throughout his career, Mamoru has received several awards, including the Encouragement Award and three Best Paper Awards from the Japanese Geotechnical Society, as well as the Young Scientists' Award from the Minister of Education, Culture, Sports, Science, and Technology, Japan (MEXT). In 2022, he was honored with the Disaster Prevention Merit Award by the Prime Minister of Japan. His research interests encompass laboratory testing and constitutive modeling of soils and rocks, tunneling, foundation, soil-structure interaction, weathering of soft rocks, and multiphase fluid flow in porous media.

<http://www.cvg.ynu.ac.jp/G3/MamoruKikumoto/index.html>