

# KOSEKI LAB.

## [Prediction of deformation and failure of ground]

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Geotechnical Engineering

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### Local deformation measurement of soil specimen

Laboratory soil testing results are affected by several factors, including the bedding errors caused by end restraint, sample disturbance, and miss-alignment, among others. Accurate measurement local deformation of soil specimens is, therefore, critical in characterizing the deformation and failure properties of geomaterials.

- ◆ Image analysis – Succeeded in evaluating local deformation of hollow cylindrical sand specimen in torsional shear tests.
- ◆ Shear banding properties could be accurately evaluated.

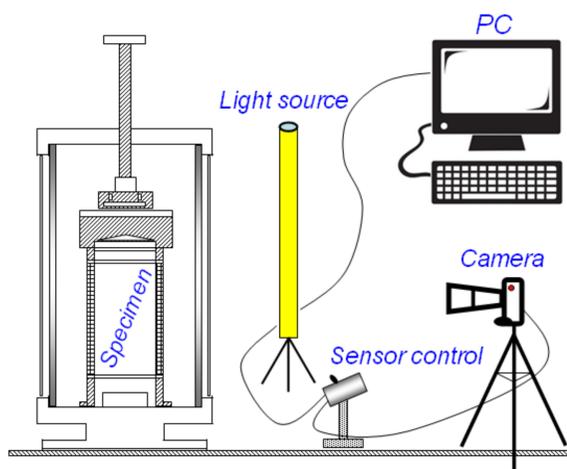


Fig.1 Configuration of hollow-cylindrical specimen and photo control system

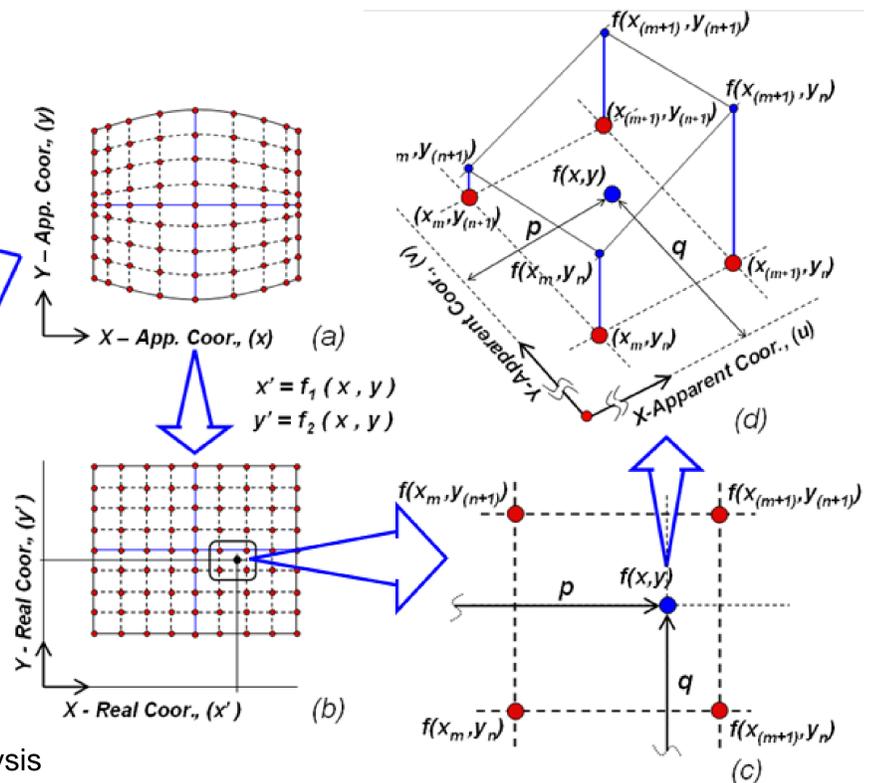
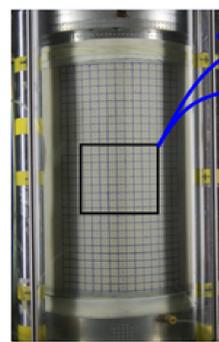


Fig.2 Flow of image analysis

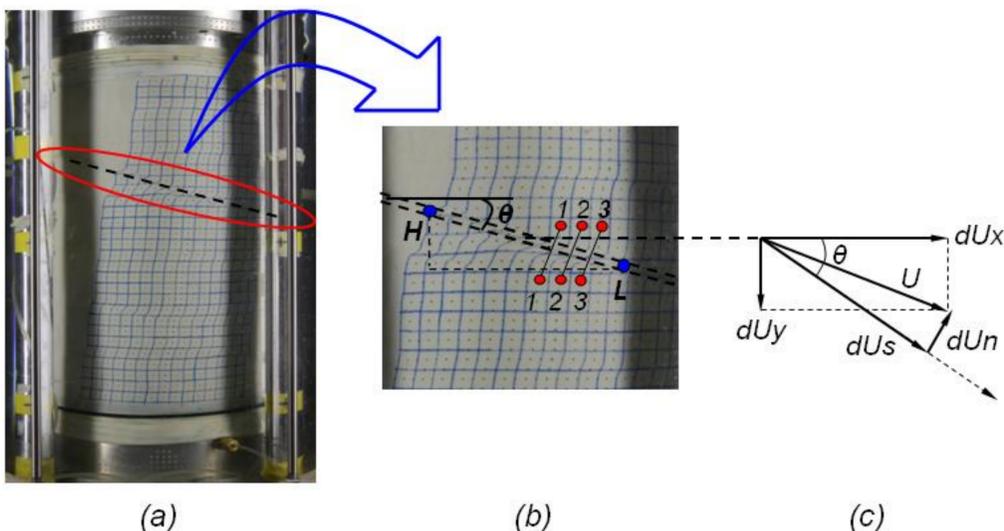


Fig.3 Shear band expansion ( $U_n$ ) and shear displacement ( $U_s$ ) evaluation procedures

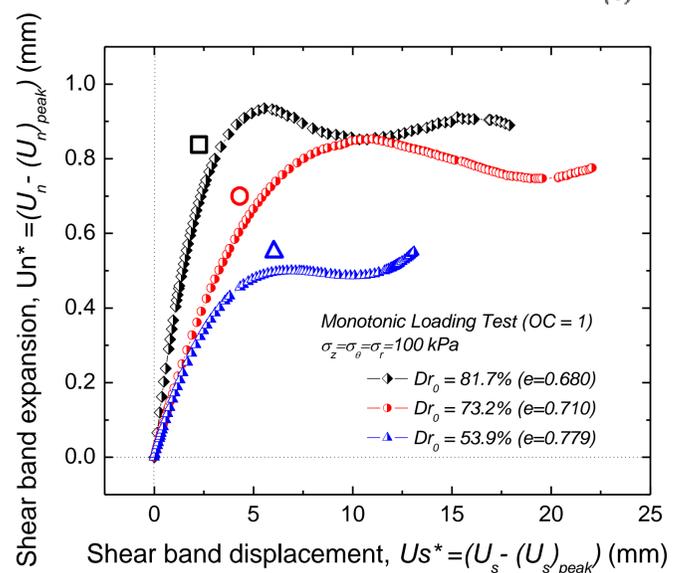


Fig.4. Shear band expansion-shear displacement relationships