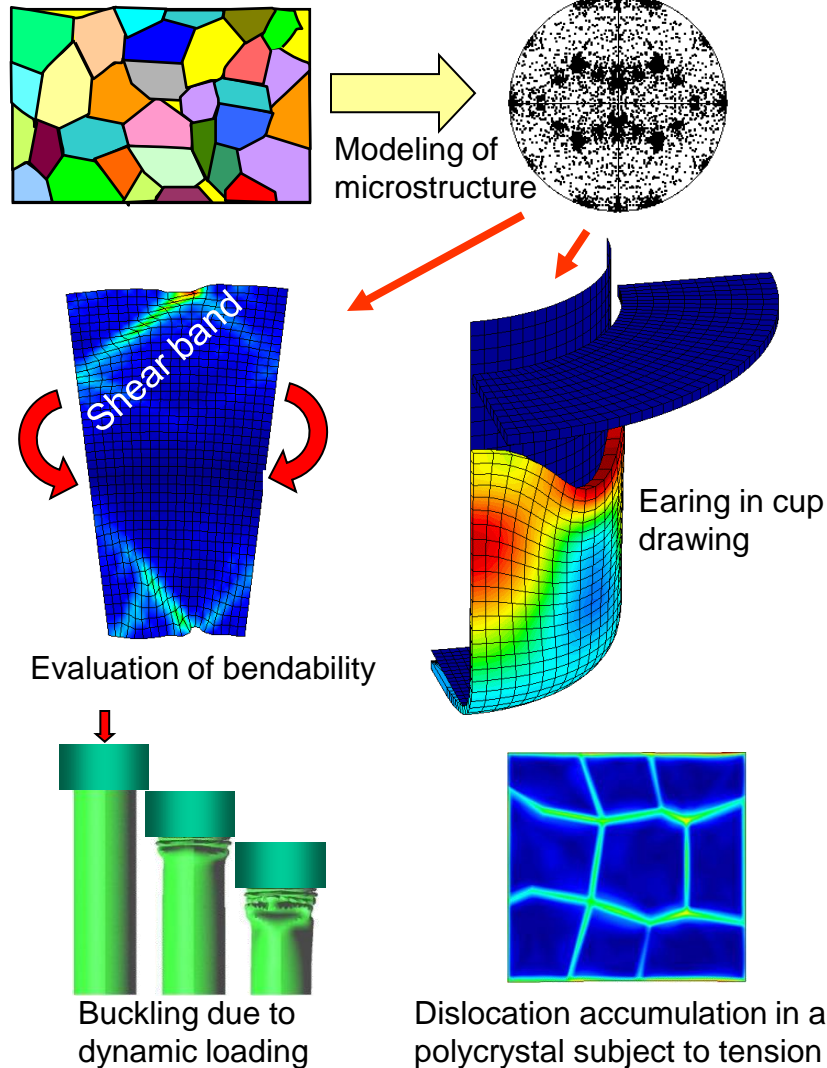


Predictions of Deformability of Metals Utilizing Their Microstructure Information (Computational Solid Mechanics)

Professor Mitsutoshi Kuroda



Contents:

The method for producing metal members from materials through plastic deformation is called “metal forming”. In this method, it is important to know in advance the limits to formability of the materials. The purpose of the present study is to predict deformability of materials utilizing their microstructure information. The main contents are as follows:

1. Deformation and mechanical response of metals are predicted by used of finite element method that incorporates crystal plasticity model.
2. The method mentioned above can predict precursor to breakage of the materials.
3. The standard crystal plasticity theory does not include any size effect observed in the real materials. Usually, metals exhibit the behavior “smaller is stronger” at the micron scale. We are now working on a theoretical study on this topic.

Yamagata University Graduate School of Science and Engineering
Research Interest : Theory of Elastoplasticity, Computational Mechanics

E-mail : kuroda@yz.yamagata-u.ac.jp
Tel : 0238-26-3211
Fax : 0238-26-3205

HP : <http://kuroda.yz.yamagata-u.ac.jp/>

