

Tokumoto Lab.

[Lattice defects and related nanostructures]

Department of Materials and Environmental Science

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

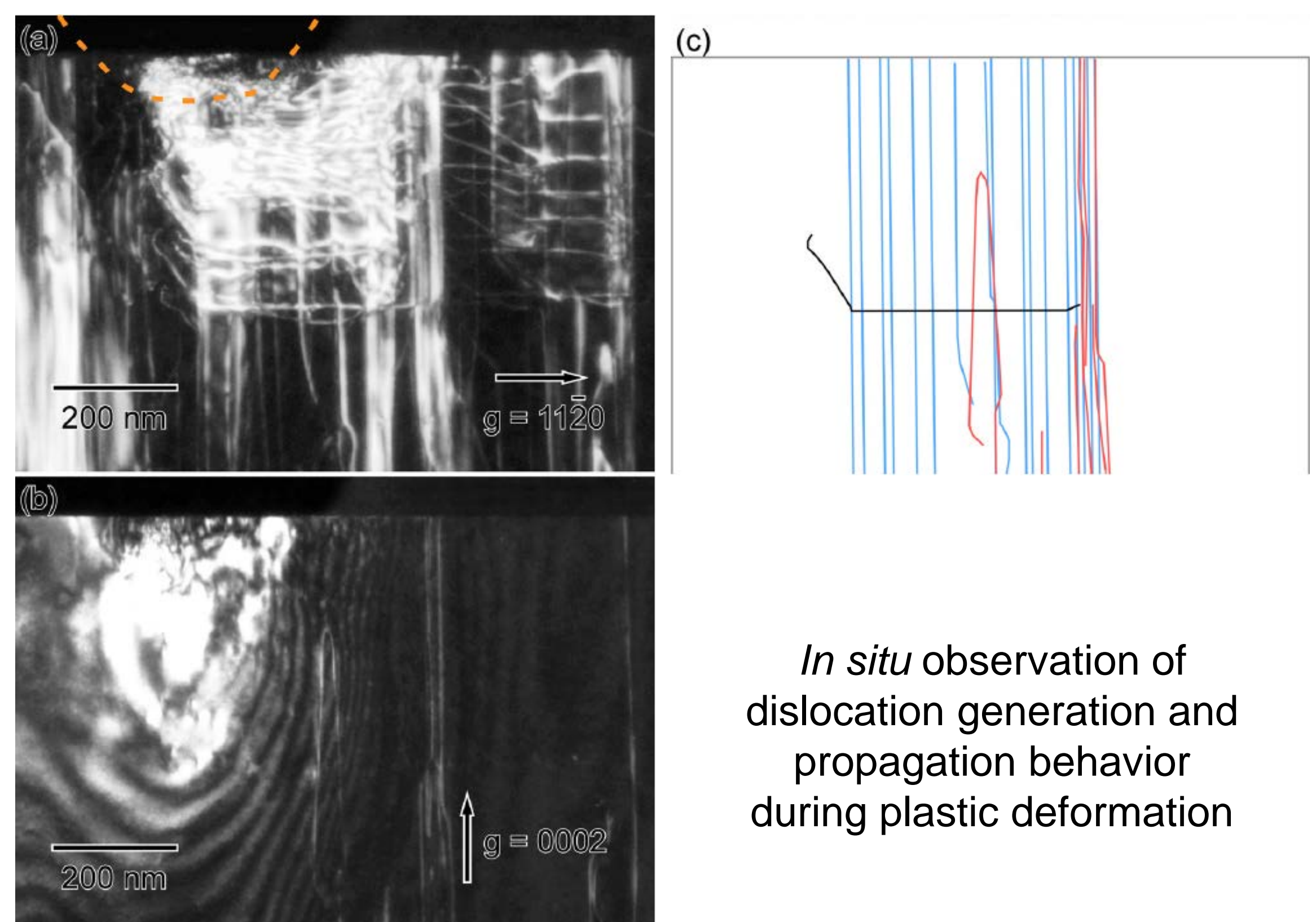
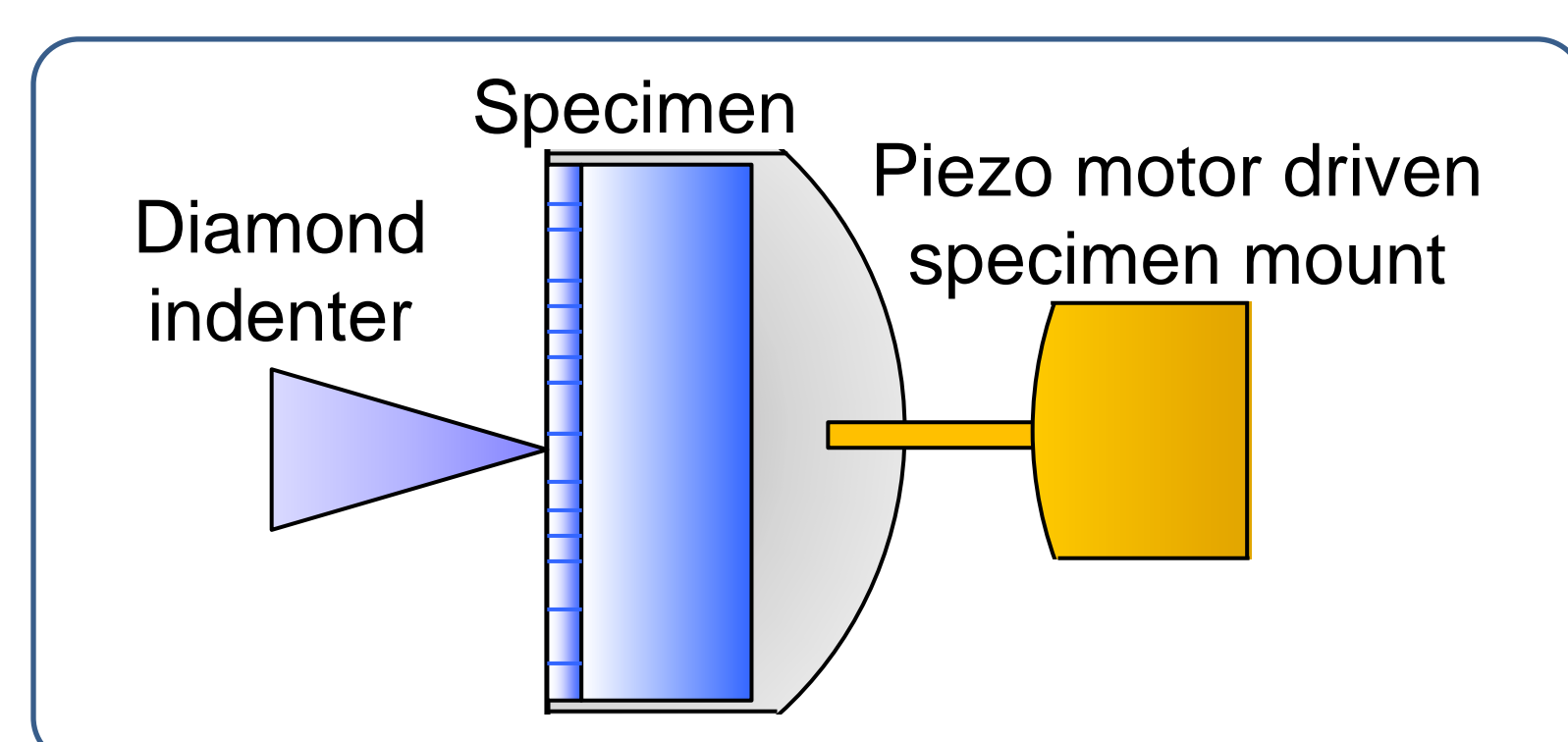
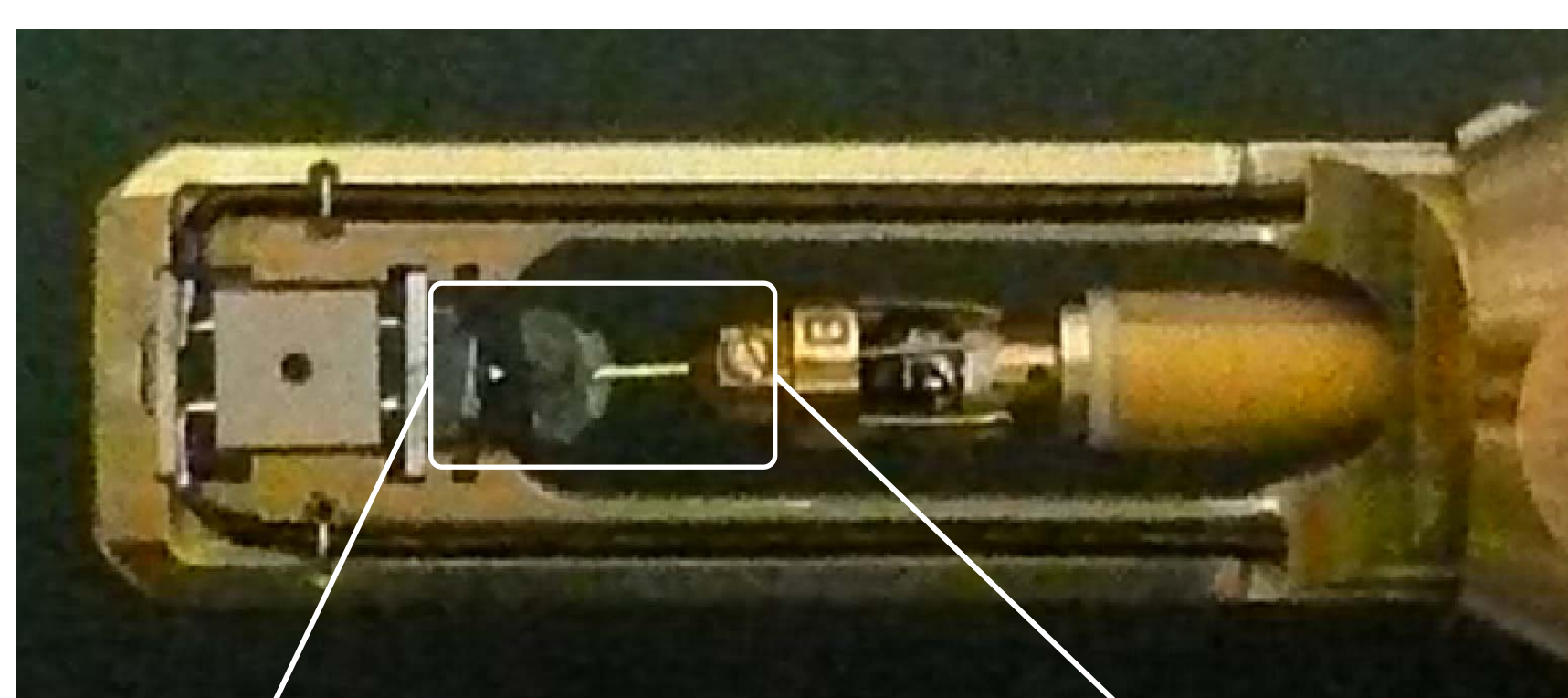
Nanostructure Materials Science

Department of Materials Engineering, School of Engineering

Dynamic properties of dislocations

We investigate dislocation generation and propagation processes by *in situ* observation of nanoscale plastic deformation in a transmission electron microscopy (TEM).

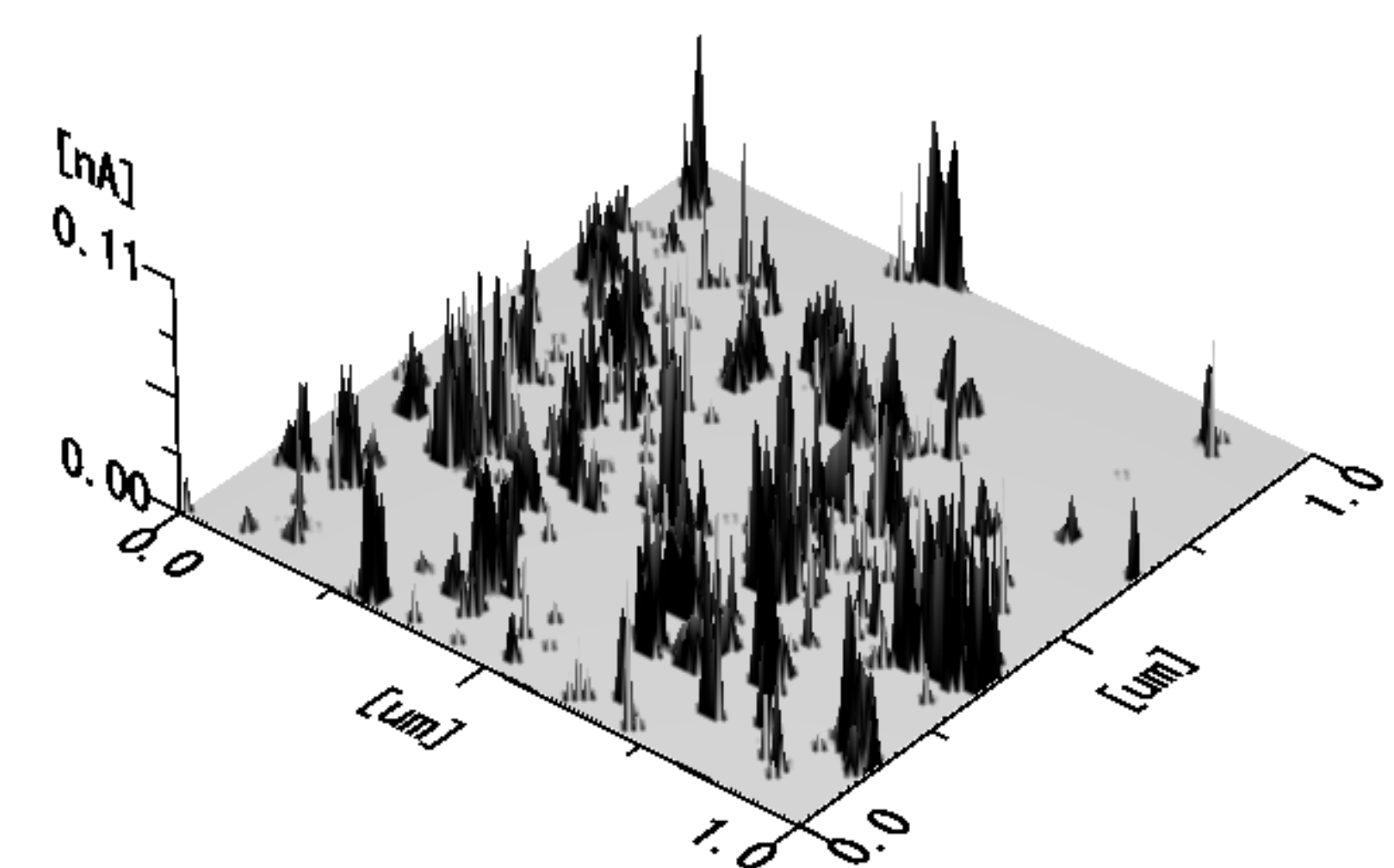
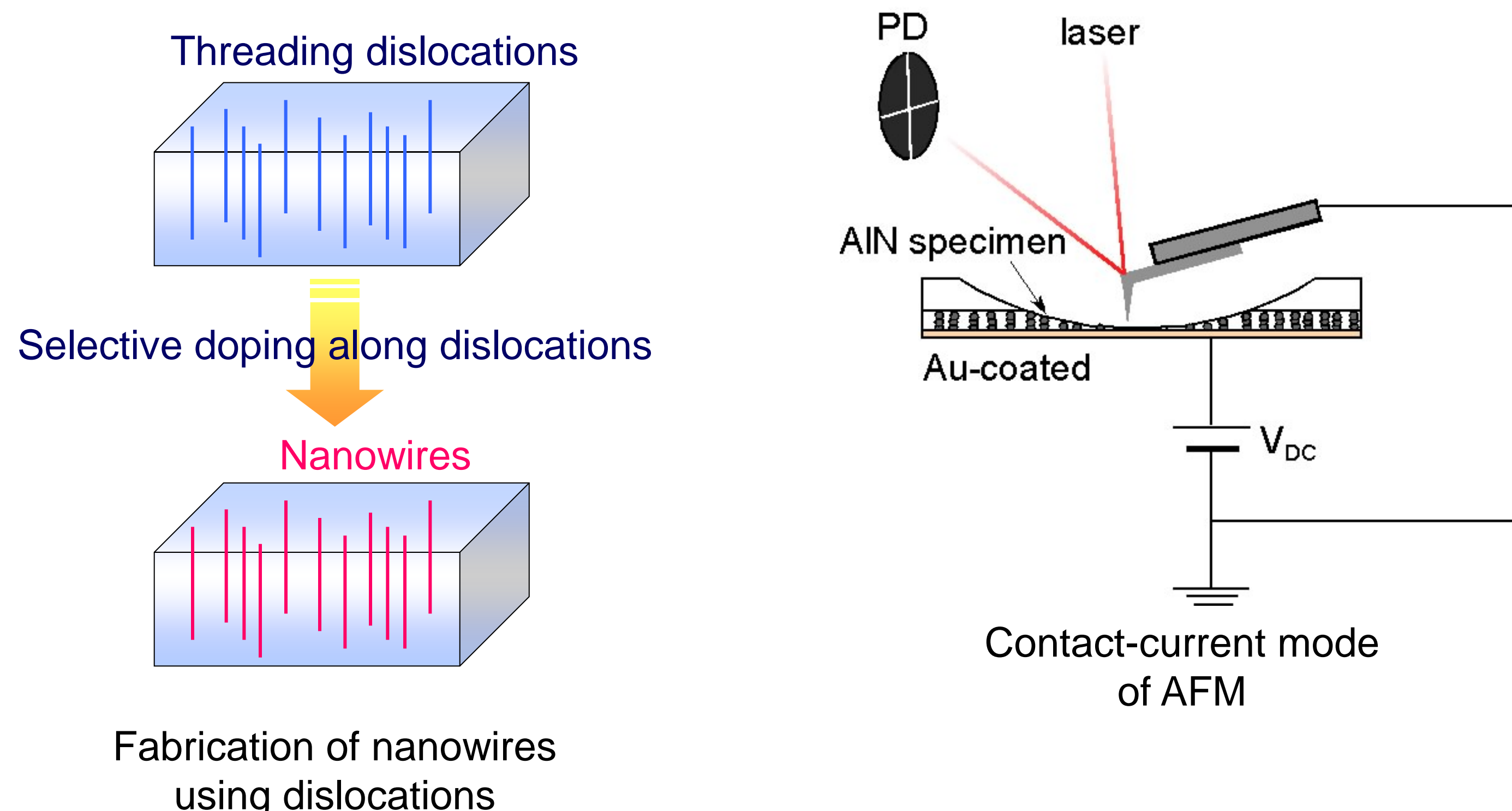
By combining *ex situ* measurements of mechanical properties and *in situ* observations of dislocation dynamics, we are trying to link the macroscopic mechanical properties and nanoscopic dislocation dynamics.



Y. Tokumoto *et al.*, *J. Appl. Phys.*, **112** (2012) 093526 1-6.

Electrical properties of dislocations

We fabricated nanowires in semiconductors by selective doping along dislocations. Atomic force microscopy (AFM) measurements under contact-current mode detected the local electrical conduction along dislocations.



Fabrication of electrically conductive nanowires

Y. Tokumoto *et al.*, *J. Appl. Phys.*, **106** (2009) 124307 1-4.

S. Amma *et al.*, *Appl. Phys. Lett.*, **96** (2010) 193109 1-3.