

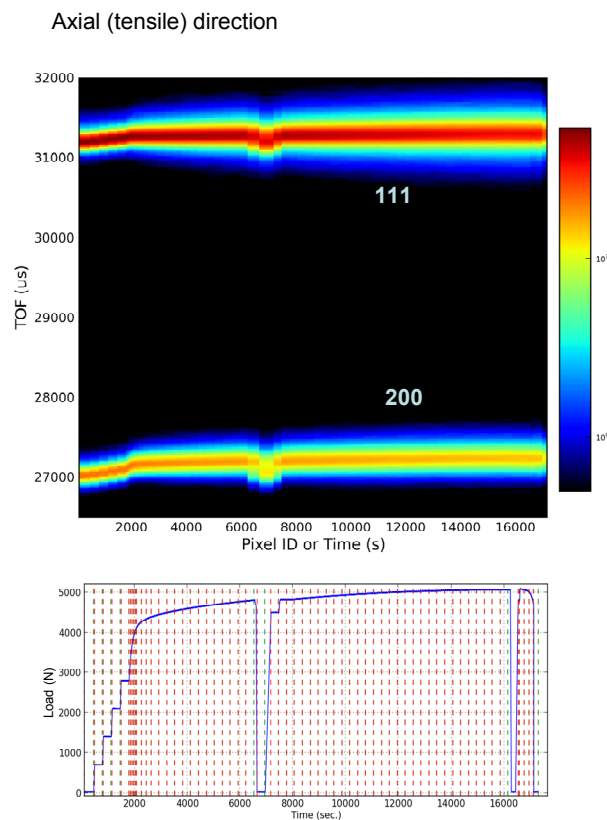
Deformation Behavior of An Austenitic Steel by Neutron Diffraction

S. Harjo, K. Aizawa, J. Abe, W. Gong

J-PARC Center, Japan Atomic Energy Agency, Tokai-mura 319-1195, Japan

stefanus.harjo@j-parc.jp

An austenitic stainless steel, type 304, is one of the most popular materials in use. Neutron diffraction is now used for various in-situ measurements during loading, changing temperature, and so on. Up to now, in-situ measurements during loading have been done by a step deformation manner in order to get diffraction profiles with good statistics. By using a neutron diffractometer installed at MLF/J-PARC, TAKUMI [1], in-situ measurements during loading can be performed continuously without load or displacement interruption, because of the high flux and a unique data acquisition technique which is so-called an event data recording. A commercial 304 type steel was tensile-deformed continuously during the plastic region and the diffraction data were then sliced after the measurement finished. The typical data is shown below and the details will be discussed during presentation.



2-D diffraction pattern plotted with respect to time (load) and TOF