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# Dislocation *configurations* through austenite grain *misorientations*

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## Abstract

In the present investigation, many strain controlled low cycle fatigue experiments of austenitic stainless steel were carried out at various total strain amplitudes under ambient temperature where the strain rate was kept constant. Dislocation cell developed due to strain cycling was measured through extensive analytical transmission electron microscopic investigation and the deformed austenite grains' misorientation was measured through extensive electron back scattered diffraction experiments. A strong connection has been established with the dislocation substructures' configurations, the deformed austenite grains' misorientation and the extents of induced phase transformation occurs while cyclic plastic deformation of metastable austenite at various total strain amplitudes. It has been investigated that with the increase in strain amplitude, dislocation cells are getting more uniform. It has

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