Elastic interaction between twins during tensile deformation of austenitic stainless steel - DTU Orbit (12/12/2018)

Elastic interaction between twins during tensile deformation of austenitic stainless steel
In austenite, the twin boundary normal is a common elastically stiff direction shared by the two twins, which may induce special interactions. By means of three-dimensional X-ray diffraction this elastic interaction has been analysed and compared to grains separated by conventional grain boundaries. However, the components of the Type II stress normal to the twin boundary plane exhibit the same large variations as for the grain boundaries. Elastic grain interactions are therefore complex and must involve the entire set of neighbouring grains. The elastic-regime stress along the tensile direction qualitatively depends on the grain orientation, but grain-to-grain variations are large.

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