

Mechanism of Microstructure Evolution during Dynamic Ferrite Transformation in Steels

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Microstructure evolution in ferritic transformation during deformation of austenite (i.e., Dynamic Ferrite Transformation) in a 6Ni-0.1C steel was studied. It was clarified that not only dynamic ferrite transformation but also subsequent deformation (and possibly dynamic recrystallization) of dynamically transformed ferrite play an important role for grain refinement. The figure shows an example of an EBSD map showing crystallographic orientation parallel to the compression direction of the specimen deformed to a strain of 0.29 at 600°C and a strain rate of 10^{-2} s^{-1} . The areas with light colors correspond to martensite, while those with dark colors correspond to dynamically transformed ferrite.

