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Contribution to crystallographic slip assessment by means of topographic measurements achieved with atomic force microscopy

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Abstract: In this paper, atomic force microscopy (AFM) is used to quantitatively characterize the plastic glide occurring during tensile deformation of a duplex 2205 stainless steel sample. We demonstrate that an appropriate treatment of the topographic image issued from AFM measurements allows precise and quantitative information about the characteristics of plastic deformation and especially the amount of crystallographic slip.

Keywords : AFM, Crystallographic slip, Plastic deformation, Duplex steel