

## **Yield Surfaces Using an Extension of the Regularized Schmid Law to Polycrystalline Materials**

**Stéphane Berbenni**, Patrick Franciosi

*GEMPPM, UMR CNRS 5510, INSA, Villeurbanne, France*

Generally, the classical Schmid law is used for elastoplastic polycrystals. A micromechanical model based on an extension of a “regularized” Schmid law to polycrystalline materials is presented. A new plastic multiplier having a crystallographic nature is then defined. The scale transition is based on an affine formulation and particularly the “Transformation Field Analysis” (TFA) is used where the effective elastic properties are deduced from a classical self-consistent scheme. Each crystal is characterized by its volume fraction and its crystallographic orientation and intra granular plastic anisotropy is taken into account through a multiple slip framework. Intra crystalline strain hardening well describes stage II for FCC single crystals. Yield surfaces have been generated for isotropic and textured FCC polycrystals and are in good agreement with the ones obtained with the classical Schmid law.

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