

## 강소성 가공을 이용한 초미세재료의 제조 및 미세조직 모델링

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Recently Severe Plastic Deformation (SPD) processing is widely used for manufacturing bulk specimens of ultrafine grained microstructure or nanostructure. As a representative SPD method, Equal Channel Angular Pressing (ECAP) is a unique and relatively simple metal forming process to the other metal forming processes, but still complex under coupled effects with multi-factors, such as geometric factors, material factors and processing conditions. Investigating the plastic deformation behavior in the deformation zone during ECAP is very significant for predicting the metal flow, microstructural evolution, controlling the quality of deformed workpiece and optimizing the ECAP processing. In this paper simulations of ECAP using the Finite Element Method (FEM) combined with microstructural evolution model based on dislocation dynamics are investigated, especially focused on the rotation of workpiece during ECAP. The papers from literature analyzing ECAP processing by FEM are summarized and compared in terms of software, mesh size, dimension and analyzed results.

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