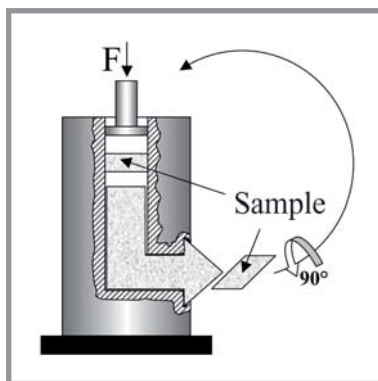




## MATERIALS DEVELOPMENT AND PROCESSING TECHNOLOGY SEVERE PLASTIC DEFORMATION (SPD)

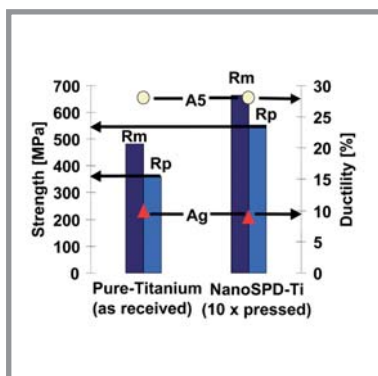
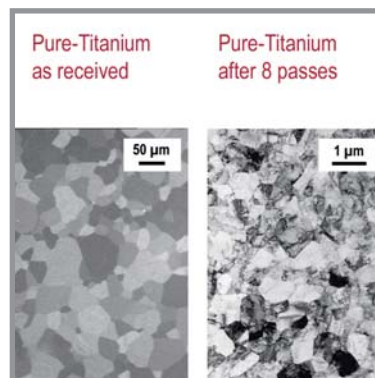
### Nanostructuring of Metallic Materials using Ultra-high Deformation

Starting with a conventional coarse-grained material, a submicrocrystalline state is achieved by subjecting the material to repeated shear under hydrostatic pressure.



This new process revolutionizes the material's properties:

- High Strength
- Enhanced Ductility
- High Strainrate Superplasticity in Alloys



The process can be applied to pure metals, alloys and intermetallics; parts of 20 mm in diameter and 90 mm in length can currently be produced. SPD plus Cold-Rolling yields strength and ductility values, equal or exceeding those of Ti-6Al-4V ELI. Examples of practical applications currently include Ti and Ti alloys for implants.

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