

## **Growth of iron single crystals in the etched ion tracks of polymer foils**

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*APPLIED PHYSICS A 72 (2001) 729-733*

Pulse reverse electrolysis in an ultrasonic field is used to grow iron single crystals of micron size in templates formed by etching the tracks of swift ions in polymer foils. High-grade crystals are produced from high-temperature ferrous chloride baths. The crystals are oriented along their  $\langle 110 \rangle$ ,  $\langle 100 \rangle$ , and  $\langle 111 \rangle$  crystallographic axes. Their orientation turns out to depend on supersaturation during the growing process. At low overvoltages of deposition,  $\langle 110 \rangle$  and  $\langle 100 \rangle$  orientations are observed. The crystals of  $\langle 111 \rangle$  orientation appear more frequently at higher cathode pulse current density. The crystals possess prominent resistance to corrosion.