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The Fabrication of the Single Crystal Wire from Cu Single Crystal Grown by Czochralski Method and Its Physical Properties

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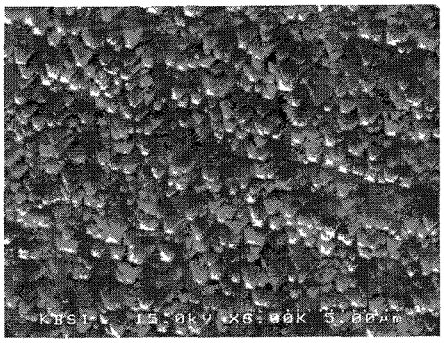
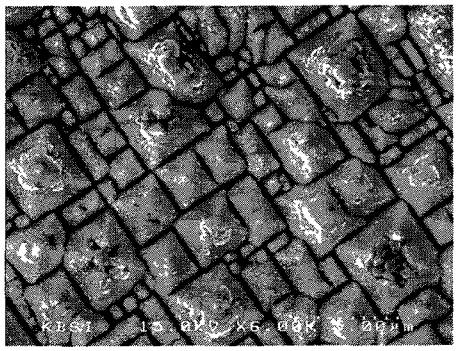
It is well known that the general metal has a lot of grain boundaries. The grain boundaries play a negative role to increase the resistivity and to decrease the conductivity. The small resistivity and the big conductivity have been a goal of the material scientists, and no signal noise, perfect signal transfer, and the realization of the real sound are the dream of electronic engineers and audio manias. Generally, OFC and OCC cables have been used for the purpose of the precise signal transfer and low noise. But they still include a lot of grain boundaries. In our study, we have grown the single crystal by the Czochralski method and succeeded to produce single crystal wires from the crystalline the dimension of 0.5 X 0.5 X 2500 mm. The produced wire still possesses very good single crystal properties. We observed the structure of the wire, and measured the resistivity and impedance. The properties of the crystal wire was compared with that of the general cupper wire.



Etch pit of general Cu



Etch pit of single crystal Cu wire