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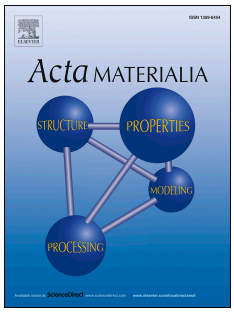

Direct volumetric measurement of crystallographic texture using acoustic waves

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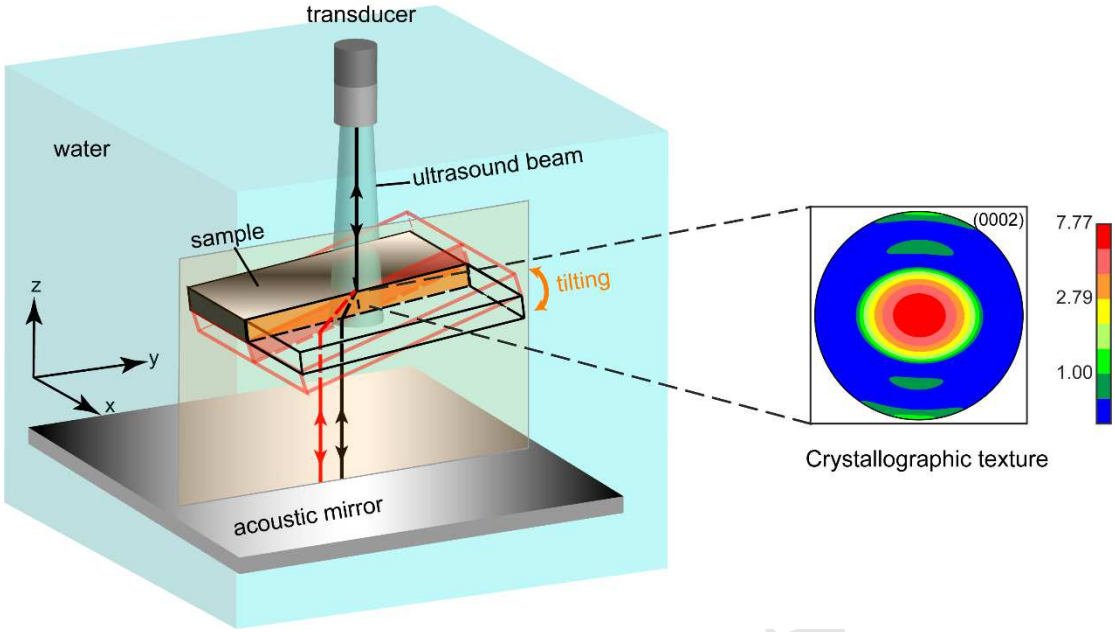

Graphical abstract:

Powered by a general theoretical platform that links the polycrystal texture with acoustic wave speeds via a simple convolution relationship, rapid non-destructive measurements of volumetric texture are achieved using the conventional water-bath ultrasonic system. The results of seven representative hexagonal and cubic samples are successfully validated against the well-established neutron diffraction technique.