# ELASTIC STUDY OF QUENCH AND COMPOSITE EUROPIUM BARIUM COPPER OXIDE ($EuBa_2Cu_3O_{7-\delta}$ (Eu123)) SUPERCONDUCTOR

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## ABSTRACT

Ultrasonic longitudinal and shear velocities at 9MHz were measured using pulse-echo overlap techniques in temperature ranges of 80-280K and 80-220K, respectively, in $EuBa_2Cu_3O_{7-\delta}$ + *y*wt.% $Al_2O_3$ (*y* = 0, 0(quenched), 0.2 and 0.4) superconductors. A step-like elastic anomaly indicating sudden lattice stiffening was observed for x=0 at around 260K. However upon quenching to reduce the oxygen content, no anomaly was observed and only a monotonous change in velocity with increasing temperature was observed. Addition of $Al_2O_3$ only shifted the anomaly to slightly lower temperatures. The step-like elastic anomaly was discussed in terms of oxygen ordering involving Cu-O chains.