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Influence of Boron Doping and Thermal Treatment on Internal Friction of Monocrystalline Si1-xGex(x≤0,02) Alloys

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Abstract : The impact of boron doping on the internal friction (IF) and shear modulus temperature spectra of Si_{1-x}Ge_x(x≤0,02) monocrsytals has been investigated by reverse torsional pendulum oscillations characteristics testing. At room temperatures, microhardness and indentation modulus of the same specimens have been measured by dynamic ultra microhardness tester. It is shown that boron doping causes two kinds effect: At low boron concentration (~10¹⁵cm⁻³) significant strengthening is revealed, while at the high boron concentration (~10¹⁹cm⁻³) strengthening effect and activation characteristics of relaxation origin IF processes are reduced.

Keywords : boron, doping, internal friction, si-ge alloys, thermal treatment
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