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**Use of point-source/point-receiver elastic waves in**  
**NDT-application**

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The ultrasonic automated experimental setup and technique for research of anisotropy of elastic properties of micro- and nanocrystalline metals and residual stresses are developed. Setup works in range of frequencies of 0.2-5 MHz. Accuracy of measurement of propagation time of elastic wave is equal to 0.2 ns, amplitude - 1%. Setup allows to make diagnostics of metals using volume, Raleigh and Lamb waves and to carry out scanning on linear and angular coordinates. Use of point source and receiver of acoustic waves and the high time resolution allows to carry out research of anisotropy and residual pressure with high spatial resolution. The x-y-coordinate device operated by personal computer, allows to carry out two-dimensional scanning of the sample by elastic waves with step of 10 micron. Experimental results of diagnostics of anisotropy of elastic properties in a number of microcrystalline constructional materials with residual stresses (alloys of aluminum and steel), and also a steel plate in the field of welded seam are presented. Significant anisotropy of elastic properties caused by these defects is revealed in investigated samples. The work is supported by RFBR.