

## REVIEW

V. ILGUNAS, E. JARONIS, V. SUKACKAS, *Ultrasonic interferometry* (in Russian), Vilna 1983

The monograph gives the theoretical fundamentals and the results of experimental research carried out in the ultrasonic laboratory of the Polytechnical Institute in Kaunas, headed by Prof. BARSAUSKAS. In addition to a complex representation of the problems of ultrasonic interferometry, the book contains a number of original achievements of its authors, which deserve above all attention.

The authors were the first to draw attention to systematic measurement error caused by the diffraction effect in interferometers. This led to the introduction of correlation of the sound velocity measurements, assumed universally as standard ones, in distilled water, carried out by the US Bureau of Standards.

The method developed by the authors permits the measurement of the absorption coefficient of liquids with weak absorption, which had previously been very difficult. The authors also give original designs of interferometer for the investigation of liquids with strong absorption and a two-chamber interferometer for measurements of liquids with weak concentration. They developed an interferometer with an open focussing resonator, permitting measurements over the low ultrasonic range, from 20 kHz on. The novelties are also interferometric methods for direct measurements of acoustic impedance and liquid density. The authors also describe high-class interferometers used in their laboratory for the purposes of metrology and scientific research. In the theoretical part, the authors analyse the mathematical model of an interferometer, taking into account the phenomena of diffraction and the formation of waveguides. They consider piezoelectric transducers from the point of view of their performance in interferometers.

The book contains a multi-sided analysis of the error involved in interferometric measurements and the shortcomings and advantages of the different interferometer types. The book is a valuable piece of ultrasonic literature, useful in particular for researchers in centres engaged in molecular acoustics

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