On Forced Reflection and Transmission of Speech, Using X-Rays

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Under external influences (temperature gradient, US oscillations and so on) the intensity of the diffracted x-ray beams can be greatly increased (up to ten times or more) and at the same time the transmitted beam can be entirely reflected in the direction of diffraction (in the Laue case). This phenomenon was named by the authors of co called "controllable complete reflection" or "forced reflection" [1,2]. Three settings of the double-crystal spectrometer will be presented for this case. In the case of controllable variation of diffracted x-ray beams, it can be obtained quick increase of the intensify of diffracted x-ray beam using modulated US oscillations. This way it becomes possible to transmit and receive audio information in particular speech by means of an x-ray beam. A scheme for a practical device for transmission and reception of audio information by x-ray beams is presented in Fig. The device operates in the following manner. Single crystal modulator 1 using x-ray beam 2 and goniometer 5 is setup in the Bragg condition for one of reflecting atomic planes of sample. Modulated electromagnetic oscillations from generators 3 and 4 are sent to the crystal modulator on which modulated xray beams "C" is exited. We can obtain a beam with changeable counting rate of electrical impulses in detector6, which becomes electric vibrations (speech) after passing through integrating circuit 7 and amplifier 8. This oscillations can be seen on the screen of oscilloscope 9 or hear by laud speaker 10.



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