Elastic longitudinal swirling wave

Kochetkov Victor Nikolayevich
chief specialist FSUE "Center for
exploitation of space ground-based
infrastructure facilities" (FSUE "TSENKI")

vnkochetkov@gmail.com
vnkochetkov@rambler.ru
http://www.matphysics.ru

*This article attempts to show that there can exist not only elastic longitudinal and transverse waves, and elastic longitudinal swirling waves. In longitudinal swirling waves may be the movement of impulse of force **A** and impulse of the moment of force **B'** in an elastic medium without mass transfer.*

PACS number: **03.30.+p**

We assume that the medium **C**, in which the wave is continuous (continuously distributed in space) and has a volumetric elasticity and an elasticity of form.

In the case of impact of impulse of force **A**, created by the source of the disturbance, for the limited volume of medium **C**, in the medium **C** will be distributed elastic longitudinal (compression-tension) and transverse (shear) waves.

In the case of impact impulse of moment of couple of forces **B**, created by the source of the disturbance, for the limited volume of medium **C**, in the medium **C** will be elastic swivel (shift) oscillatory motion, alternating in the direction of rotation, in the area adjacent to the source of disturbance (the simplest example: the source of disturbance is the drive, inside is not limited by the dimensions of the rubber plate and to which was attached the impulse of the moment of couple of forces, that led to the rotation of the disk and the twisting zone of the rubber, surrounding the disk).

In the case of joint action of impulse of force **A** and impulse of moment of couple of forces **B** (force **B'**), created by the source of the disturbance, for the limited volume of medium **C**, in the medium **C** may occur elastic longitudinal swirling wave.

Longitudinal swirling wave can be represented, as a longitudinal wave, doing the rotation, alternating in the direction, around an axis parallel to the direction of motion of longitudinal wave.

In the longitudinal swirling wave, the moving of impulse of force **A** and impulse of moment of couple of forces **B** in an elastic medium **C** can occur without mass transfer.

The model of the longitudinal swirling wave can be used in quantum theories of strings and superstrings, and also when considering electromagnetic and light radiations.

E-mail: VNKochetkov@gmail.com .
E-mail: VNKochetkov@rambler.ru .
Site: http://www.matphysics.ru .