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## On new possible directions of hydrodynamical instabilities and turbulent mixing investigations for the solution some practical problems

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Hydrodynamic instability and turbulent mixing play the important role in a problem of inertial confinement fusion (ICF) and astrophysics; it, first of all, also defines interest to the given problem. In the ICF problem hydrodynamic instability and turbulent mixing are the factors *interfering* achievement of ignition of thermonuclear fuel. Meanwhile, there are some other practical problems at which hydrodynamic instability and turbulent mixing are the factors *promoting* the solution of a problem. At the solution of similar problems results lead before researches and the developed methods can be used. And, if till now these development were conducted from the point of view of the solution of a problem of suppression of instabilities or reduction of their nocuous action now these "harmful" properties can be used address various practical problems.

In the report the review of new possible directions of researches hydrodynamic instabilities and turbulent mixing with regard to applied problems is presented.

The phenomena of turbulent mixing can be under certain conditions used for creation of atomized liquids [1,2] and others media [3]. Similar aerosuspensions can find of wide application:

Suppression of fires [2,4];

Reduction in explosive loadings [5,6];

Localization of harmful (radioactive) aerosols and a dust;

Preparation of fuel-air mixtures in engines of internal combustion [2,7];

Hydrodynamic instability and turbulent mixing can play an essential role at explosive suppression of forest fires [8,9].

The powerful explosive short-term light source in which fast cooling of luminous explosive plasma is carried out due to turbulent mixing [10,11] is developed.

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