CORRELATIONS OF SCALAR FIELD IN THE STOCHASTIC MEDIUM.

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ABSTRACT: Correlations between the scalar field values (temperature, particle number etc.) in two space - time points in the turbulent medium are considered. Explicit analytical fore of correlators is obtained. Possible random sources of the scalar fields are taken into account. Obtained formulae are true in the most important case when the characteristic scale of the turbulence is of the order of $u_0 \tau_0$, where u_0 is the turbulent velocity, and τ_0 is the correlation time. The obtained results may be important for the problem of stellar convection.