# ROBUSTNESS OF NOISE-PRESENT BELL'S INEQUALITY VIOLATION BY ENTANGLED STATE

*I.S. Dotsenko, V.G. Voronov*

Taras Shevchenko Kyiv National University,
Faculty of Physics
(*6, Academician Glushkov Ave., Kyiv 03127, Ukraine; e-mail: ivando@ukr.net*)

S u m m a r y

The robustness of Bell's [in the Clauser–Horne–Shimony–Holt (CHSH) form] inequality violation for an entangled state under the simultaneous presence of colored and white noises in the system is studied. The two-photon polarization state is modeled by a two-parameter density matrix. By choosing the parameters, one can set a relative fraction of pure entangled Bell's state, as well as the fractions of white and colored noises. The analysis of the dependence of Bell's operator on the parameters is made. Computational results are compared with experimental data [9] and with those computed within the one-parameter density matrix [8] which is a special case of the model considered in this work.