

# Challenges of the world-wide experimental search for the electric dipole moment of the neutron



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## Present status and future prospects of nEDM experiment in Grenoble and in Gatchina

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For the last few years the work on preparation and performance of an experiment on neutron EDM search with the PNPI double-chamber EDM spectrometer has been carried out by collaboration of PNPI-ILL-PTI with PF2 MAM ultra cold neutron beam at ILL. We have obtained constraint for neutron EDM value at confidence level of 90%:  $|dn| < 5,5 * 10^{-26}$  ecm. *The double-chamber spectrometer provides principally different possibility of controlling systematic effects. It is obvious that one should continue making measurements which were interrupted but it is required that UCN intensity determining the statistical measurement accuracy should be raised. Accuracy is likely to be increased by making PF2 EDM beam more intensive and by applying a new spectrometer scheme. On the whole, we expect to achieve estimation accuracy approximately equal to  $110^{-26}$  e\*cm.*

The second part of talk will be devoted to preparation of high-intensive UCN facilities with density about  $10^4$  ucn/cm<sup>3</sup>. We would like to concentrate efforts in the preparation of the facilities. In case of successful result we are going to continue our nEDM measurements in PNPI. At the same time we are ready to propose the facilities for other EDM collaborations.

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