

Development of a Two-Phase Xenon Dark Matter Detector*

D. Yu. Akimov^{**}, A. Bewick¹⁾, M. V. Danilov, D. C. R. Davidge¹⁾, J. V. Dawson¹⁾,
V. A. Ditlov, J. R. Gillespie^{1),2)}, A. S. Howard¹⁾, W. G. Jones¹⁾, M. K. Joshi¹⁾,
A. G. Kovalenko, D. A. Kovalenko, V. N. Lebedenko³⁾, T. J. Sumner¹⁾, and J. J. Quenby¹⁾

*Institute of Theoretical and Experimental Physics,
Bol'shaya Cheremushkinskaya ul. 25, Moscow, 117259 Russia*

Received April 17, 2002

Abstract—The current status of the development study focused on building a novel two-phase xenon detector for dark matter search is described. Discrimination of the radioactive background is based on particle identification that comes from the analysis of the scintillation-to-ionization ratio. Electroluminescence (proportional scintillation) is used for “amplification” of the ionization signal. © 2003 MAIK “Nauka/Interperiodica”.