

Abstract Submitted
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Update on the direct n-n scattering experiment at the reactor YAGUAR¹ S.L. STEPHENSON, B.E. CRAWFORD, Gettysburg College, W.I. FURMAN, E.V. LYCHAGIN, A. YU. MUZICHKA, G.V. NEKHAEV, E.I. SHARAPOV, V.N. SHVETSOV, A.V. STRELKOV, JINR, B.G. LEVAKOV, A.E. LYZHIN, YU. I. CHERNUKHIN, Russian Federal Nuclear Center, C.R. HOWELL, Duke/TUNL, G.E. MITCHELL, NCSU/TUNL, W. TORNOW, Duke/TUNL, R.A. SHOWALTER-BUCHER, Northeastern University — The first direct measurement of the 1S_0 neutron-neutron scattering experiment using the YAGUAR aperiodic reactor at the Russian Federal Nuclear Center — All Russian Research Institute of Technical Physics has preliminary results. Thermal neutrons are scattered from a thermal neutron “gas” within the scattering chamber of the reactor and measured via time-of-flight. These initial results show an unexpectedly large thermal neutron background now understood to be from radiation-induced desorption within the scattering chamber. Analysis of the neutron time-of-flight spectra suggests neutron scattering from H₂ and possibly H₂O molecules. An experimental value for the desorption yield η_γ of 0.02 molecules/gamma agrees with modeled results. Techniques to reduce the effect of the nonthermal desorption will be presented.

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