Universal Decoherence Calculation for Neutron-Antineutron Mirror Reflection[1] SHUFAN LU, KYLIE AURORA DICKERSON, WILLIAM MICHAEL SNOW, Indiana Univ - Bloomington — Recent calculations of the mirror reflection of an oscillating neutron-antineutron system [1] uncovered a regime of high reflectivity in the limit of small reflection angles. We present an analysis of the effect of neutron decoherence in mirror reflection in the presence of both absorption and scattering for mirrors composed of stable nuclei. We use Kerbikov's Lindblad-based formalism [2] along with the residence time of the neutrons and antineutrons in the mirror as derived from neutron optics [3] and confirmed in the recent measurement of the neutron Goos-Hnchen effect [4] and a recent analysis of antineutron-nucleus scattering lengths [5]. //// [1] V. V. Nesvizhevsky, V. Gudkov, K. V. Protasov, W. M. Snow, and A. Yu. Voronin, Phys. Rev. Lett. 122, 221802 (2019). arXiv: 1810.04988. [2] B. O. Kerbikov, Phys. Lett. B 795 (2019) 362. arXiv:1810.02153. [3] A I Frank, J. Phys.: Conf. Ser. 528 012029 (2014). [4] V. -O. de Haan, J. Plomp, T. M. Rekveldt, et al., Phys. Rev. Lett. 104 010401 (2010). [5] K. V. Protasov, V. Gudkov, E. A. Kupriyanova, V. V. Nesvizhevsky, W. M. Snow, and A. Yu. Voronin, Phys. Rev. D 102, 075025 (2020). arXiv: 2009.11467.

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