

Abstract Submitted  
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**Two-neutron transfer in the  ${}^6\text{He} + {}^{209}\text{Bi}$  reaction near the Coulomb barrier** PATRICK J. MEARS, Hope College, P.A. DEYOUNG, G F. PEASLEE, Hope College, J.J. KOLATA, University of Notre Dame, E.F. AGUILERA, Instituto Nacional de Investigaciones Nucleares, F.D. BECCHETTI, University of Michigan — The cross section for  $\alpha$ -particle emission in the  ${}^6\text{He} + {}^{209}\text{Bi}$  reaction at energies near the Coulomb barrier is remarkably large. Possible reactions that may produce the observed  $\alpha$ -particles include two-neutron transfer, one-neutron transfer, and direct projectile breakup. Each of these mechanisms results in a distinctive angular correlation between the  $\alpha$  particle and the outgoing neutron(s). A neutron- $\alpha$ -particle coincidence experiment was performed to study two-neutron transfer to unbound states of  ${}^{211}\text{Bi}$ . It is shown that approximately 55% of the observed  $\alpha$ -particle yield at and beyond the grazing angle is due to this process. This is more than 2.5 times the fraction attributable to single-neutron transfer. This work has been published: Phys. Rev. C 71, 051601 (R) (2005)

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