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Directional Correlation of Nuclear-Collision Probability for Aligned Beams of Deformed Nucleus M. FUKUDA, Dept. of Phys., Osaka Univ., D. NISHIMURA, M. TAKECHI, M. MIHARA, K. MATSUTA, R. MATSUMIYA, T. KUBOKI, K. NAMIHIRA, I. HACHIUMA, T. YAMAGUCHI, T. SUZUKI, Y. OKUMA, M. NAGASHIMA, T. OHTSUBO, Y. SHIMBARA, T. IZUMIKAWA, K. TANAKA, T. SUDA, S. MOMOTA, W. XU, G.W. FAN, S. FUKUDA, S. SATO, M. KANAZAWA, A. KITAGAWA, HIMAC SIGMAR COLLABORATION — We could observe the directional correlation of the nuclear-collision probability between the direction of beam of deformed nuclei and the deformation axis for heavy-ion collisions at intermediate energies for the first time. The experiment was carried out at the HIMAC synchrotron and fragment-separator facility. Aligned nuclear beams of ^{10}B were produced through the projectile fragmentation of 130A MeV ^{11}B primary beam on Be targets. By selecting the parallel momentum using the separator, negative or positive nuclear spin alignment of ^{10}B relative to the beam axis were created. The ground state of ^{10}B is considered to have a large prolate deformation of $\beta_2 \sim +0.8$. Using these aligned beams, the interaction cross sections were measured on a carbon target. The interaction probabilities were precisely obserbed as a function of longitudinal momentum of the secondary ^{10}B beam. A clear directional correlation was observed. We will report on the details of measurements and discussions on this intriguing result.

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