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Elliptic flow in Fermi-energy heavy-ion collisions and the nuclear equation of state ALAN MCINTOSH, Texas A&M University Cyclotron Institute, ALDO BONASERA, STRATOS GALANOPOULOS, KRIS HAGEL, ZACH KOHLEY, LARRY MAY, MICHAEL MEHLMAN, DINESH SHETTY, W.B. SMITH, SARAH SOISSON, GEORGE SOULIOTIS, BRIAN STEIN, RAHUL TRIPATHI, ROY WADA, SARA WUENSCHEL, SHERRY YENNELLO — The nuclear equation of state, which describes the behavior of nuclear matter as a function of temperature and density, impacts the dynamics of supernovae explosions, the rapid synthesis of elements during these explosions, and properties of neutron stars. At present, the largest uncertainty in the equation of state is the density dependence of the symmetry energy. The elliptic flow in heavy ion collisions is predicted to be a sensitive probe of the symmetry energy. In the present work, we investigate the elliptic flow for isotopically resolved light charged particles produced in collisions of 70Zn+70Zn at E/A = 50MeV. The observed elliptic flows decrease with increasing collisions violence and increase with particle transverse momentum. The magnitude of the flow roughly scales with the number of nucleons. The flow after scaling differs between the species, which may be due in part to the symmetry energy. In the context of a dynamical model, CoMD, we investigate the impact of the density dependence of the symmetry energy on the flow of the light charged particles, particularly the mirror nuclei 3H and 3He.

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