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b) For small nucleon transfers the cross section strongly depends on the relationship between the number of neutrons and protons.

7.12

Electromagnetic Radiation Following a Heavy Ion Reaction.

D. SPERBER (*IIT-Research Institute*).

Following heavy ion bombardment the compound nucleus has a high spin in a direction perpendicular to the beam. This nucleus decays first by particle emission. This emission decreases very little the magnitude and the direction of the spin of the compound state. When particle emission is energetically prohibited the nucleus decays electromagnetically. Due to the high spin and its polarization this radiation is highly anisotropic. The angular distribution of this radiation is evaluated, contributions from M1 and E2 transitions are included. Transitions between states in the statistical region as well between states in rotational bands are studied.

7.13

Adiabatic High Energy Coulomb Fission by Very Heavy Ions.

L. WILETS (*University of Washington, Seattle*), E. GUTH (*Oak Ridge National Laboratory, Tennessee*) and J. S. TENN (*University of Washington, Seattle*).

It is proposed that very heavy ions (including uranium) be utilized to induce fission through the Coulomb interaction only. Because the projectile moves slowly, the process is expected to be nearly adiabatic (no intrinsic excitation). Differential cross sections of hundreds of millibarns are calculated, and fission fragments are found to emerge preferentially at 90° in the pair-frame. The new generation of heavy ion accelerators, proposed by several laboratories, should enable observation of the effect we predict. A primary objective of the experiments would be to determine the location and the shape of the energy-deformation curve. This would provide a severe test of various nuclear model theories.

7.14

Large Angle Scattering of ^{16}O on ^{12}C .

W. VON OERTZEN, H. GUTBROD, U. VOOS and R. BOCK (*Max Planck Institut für Kernphysik, Heidelberg, Germany*).

The scattering of 38 MeV ^{16}O on ^{12}C has been measured from 30° to 170° c.m. In forward direction the angular distribution is nearly without structure. At large angles $> 100^\circ$ c.m. however, a strong oscillation and an increase of the cross section up to 10 mb (160° c.m.) is observed which cannot be explained with usual optical model calculations. The excitation function at 90° and 139° c.m. between 30 and 35 MeV ^{16}O energy shows a fluctuating structure with a mean width of about 300 keV. Possible reaction mechanisms (direct and compound) will be discussed.

7.15

Fission Product Yields.

H. W. NEWSON (*Duke University*).

The statistical shell model of fission¹⁾ has been re-examined. The departure from equilibrium at scission (*i.e.*, the smearing parameter) can be inferred from the spread of total kinetic energy for a given mass division, and a good fit to the fission yields of ^{252}Cf can now be calculated without the use of any free parameters. Similarly the "deformability" of the fragments may be