

## Isospin Equilibration

E. Martin, A. Keksis, A. Ruangma, G. Souliotis, M. Veselsky, E. M. Winchester, S. J. Yennello, T. Keutgen, R. Wada, K. Hagel, M. Murray, Y. G. Ma, J. B. Natowitz, J. Cibor, L. Qin, C. Hamilton, A. Makeev, Samant, M. Cinausero, D. Fabris, E. Fioretto, M. Lunardon, G. Nebbia, G. Prete, G. Viesti<sup>a</sup>; Z. Majka, P. Staszal<sup>b</sup>; S. Kowalski and W. Zipper<sup>c</sup>; M. E. Brandan, A. Martinez, A. Menchaca-Rocha<sup>d</sup>; Y. El Masri<sup>e</sup>

<sup>a</sup>*INFN-Legnaro, Padova, Italy*

<sup>b</sup>*Jagiellonian University, Krakov, Poland*

<sup>c</sup>*Silesian University, Katowice, Poland*

<sup>d</sup>*UNAM, Mexico*

<sup>e</sup>*UCL, Louvain-la-Neuve, Belgium*

The question of whether or not an excited nuclear system reaches equilibrium before decaying is of importance when trying to determine the events that occur in hot nuclear matter just prior to fragment emission. Isospin equilibrium is one type of equilibrium that excited nuclear matter can achieve.

We examine the reactions of 35 and 45 MeV/nucleon <sup>54, 58</sup>Fe and <sup>58, 64</sup>Ni on <sup>54, 58</sup>Fe and <sup>58, 64</sup>Ni in order to study isospin equilibration. The data were taken using NIMROD. This array incorporates the outer shell of the 4 $\pi$  Neutron Ball [1], the backward half of the CsI Ball [2], and a newly fabricated set of forward rings. With the use of the NIMROD apparatus [3], detailed and extensive isotopic information can be obtained for analysis.

In the data analysis, the N/Z tracer method [4], will be used to gauge the amount of isospin equilibration that occurs in the system prior to fragment emission, at this intermediate energy [3]. Also, isobaric ratios [5] will be used to test whether or not isospin equilibrium has been reached. The mixed isospin, same-mass systems will provide mass nondependent data concerning isotopic equilibration. The neutron-poor <sup>54</sup>Fe beams and targets as well as the

neutron rich beams and targets of <sup>64</sup>Ni could lend some interesting insight into nucleon flow between target and projectile during the isospin equilibration process.

Calibrations have begun on the NIMROD data, taken in March of 2000. The Si vs. Si spectra are being analyzed for their punch through points and the Si vs. CsI spectra lines are being matched with functions using an optimization method being developed by the SJY group.

### References

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