

Study of the reactions $^{78}\text{Kr}+^{40}\text{Ca}$ and $^{86}\text{Kr}+^{48}\text{Ca}$ at 10 AMeV

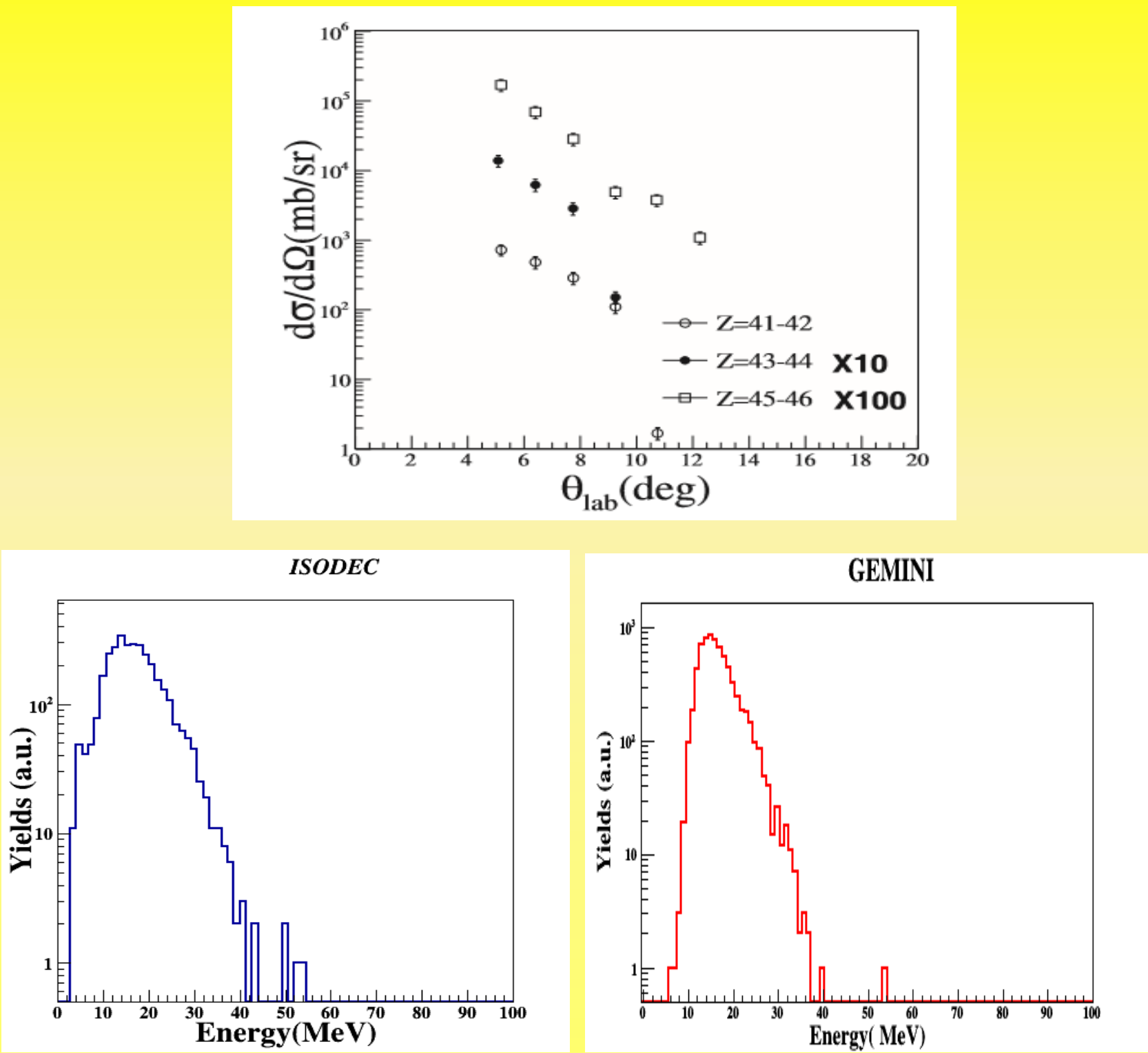
B. Gnoffo^{1,2}, S. Pirrone², G. Politi^{1,2}, L. Acosta^{2,3}, G. Cardella², E. De Filippo², E. Geraci^{1,2}, C. Guazzoni⁴, C. Maiolino⁵, N.S. Martorana^{1,5},
A. Pagano², E.V. Pagano⁵, M. Papa², F. Risitano^{2,6}, F. Rizzo^{1,5}, P. Russotto⁵, V. Sicari⁴ and M. Trimarchi^{2,6}

1) Dipartimento di Fisica e Astronomia E. Majorana, Università di Catania, Italy 2) INFN-Sezione di Catania, Italy 3) Instituto de Fisica, Universidad Nacional Autónoma de México 4) Dip. di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy
5) INFN-LNS, Catania Italy 6) Dipartimento di Scienze MIFT, Univ. di Messina, Messina, Italy

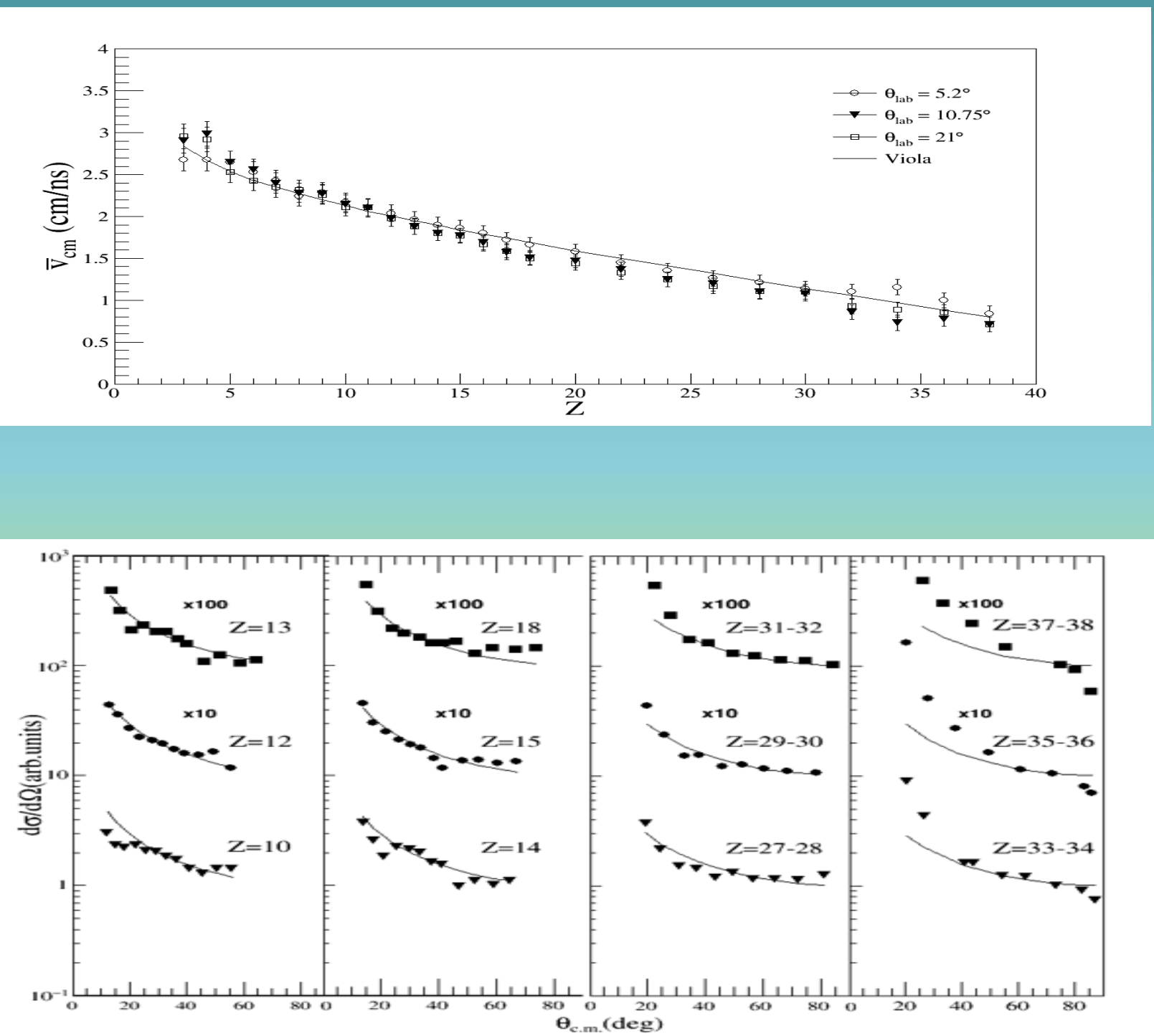
In this work the principal results of data analysis of the reactions $^{78}\text{Kr} + ^{40}\text{Ca}$ and $^{86}\text{Kr} + ^{48}\text{Ca}$ at laboratory energy of 10 AMeV are presented. The experiment has been carried out at INFN-Laboratori Nazionali del Sud, with the 4 π multidetector CHIMERA, used for the first time in this low energy regime, thanks to the implementation of its identification capabilities (pulse shape discrimination on silicon detectors). The isospin influence on the reaction mechanisms in central and semi-central collisions has been investigated, with particular attention to Evaporation and Fission-like processes following Fusion and to the break-up mechanism of the Projectile-like Fragment. The dynamical or statistical nature of the latter mentioned reaction mechanism has been studied through the analysis of fragments kinematics features and a dependence on the isospin of the involved system has been found. The energy spectra of alpha particles have been studied in order to obtain information about the temperature of their emission source in the two systems. Finally, a comparison of the experimental data with the results of some theoretical models will be presented.

Compound Nucleus Decay Modes and Quasi-Fission

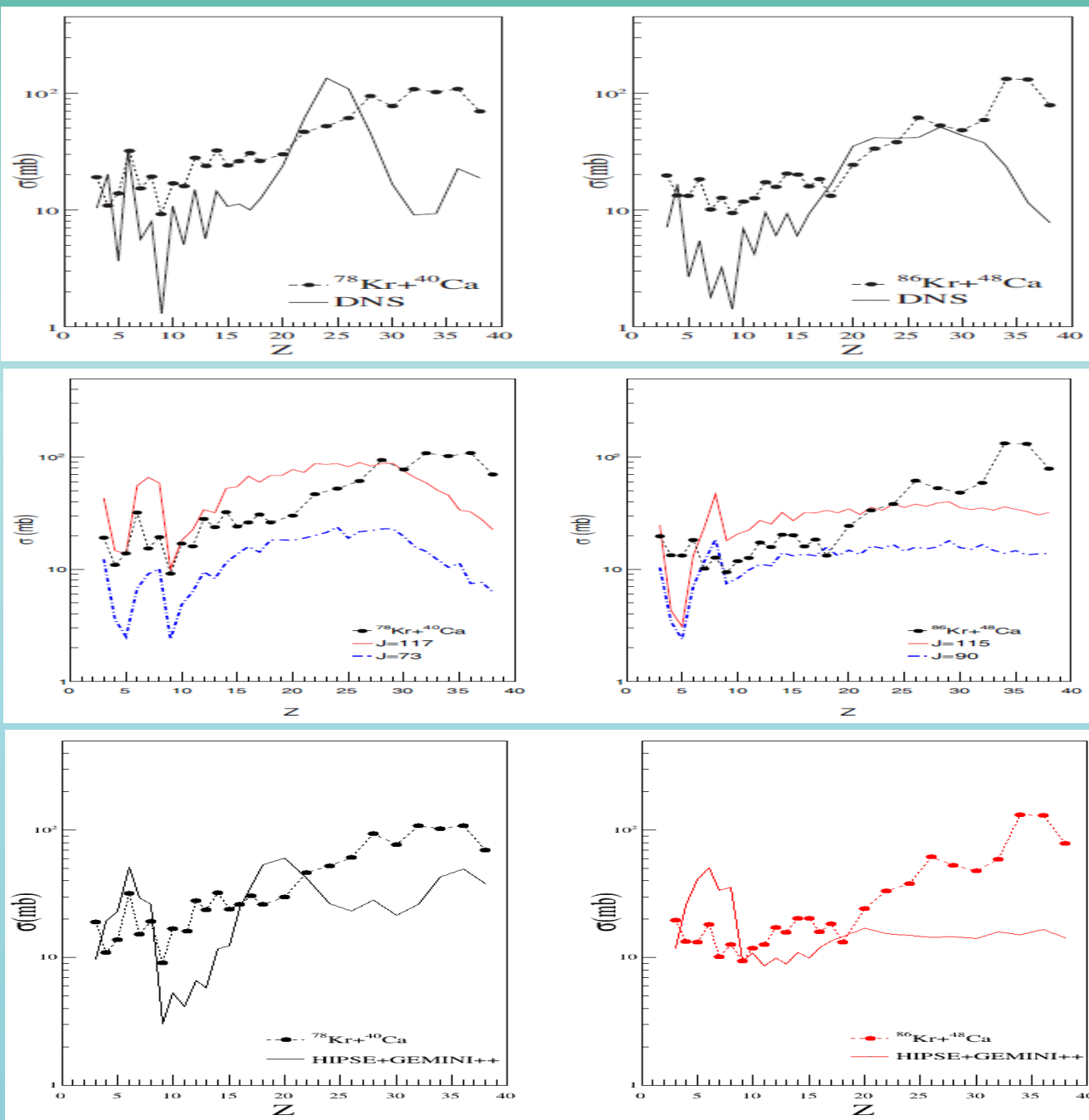
Fusion-Evaporation



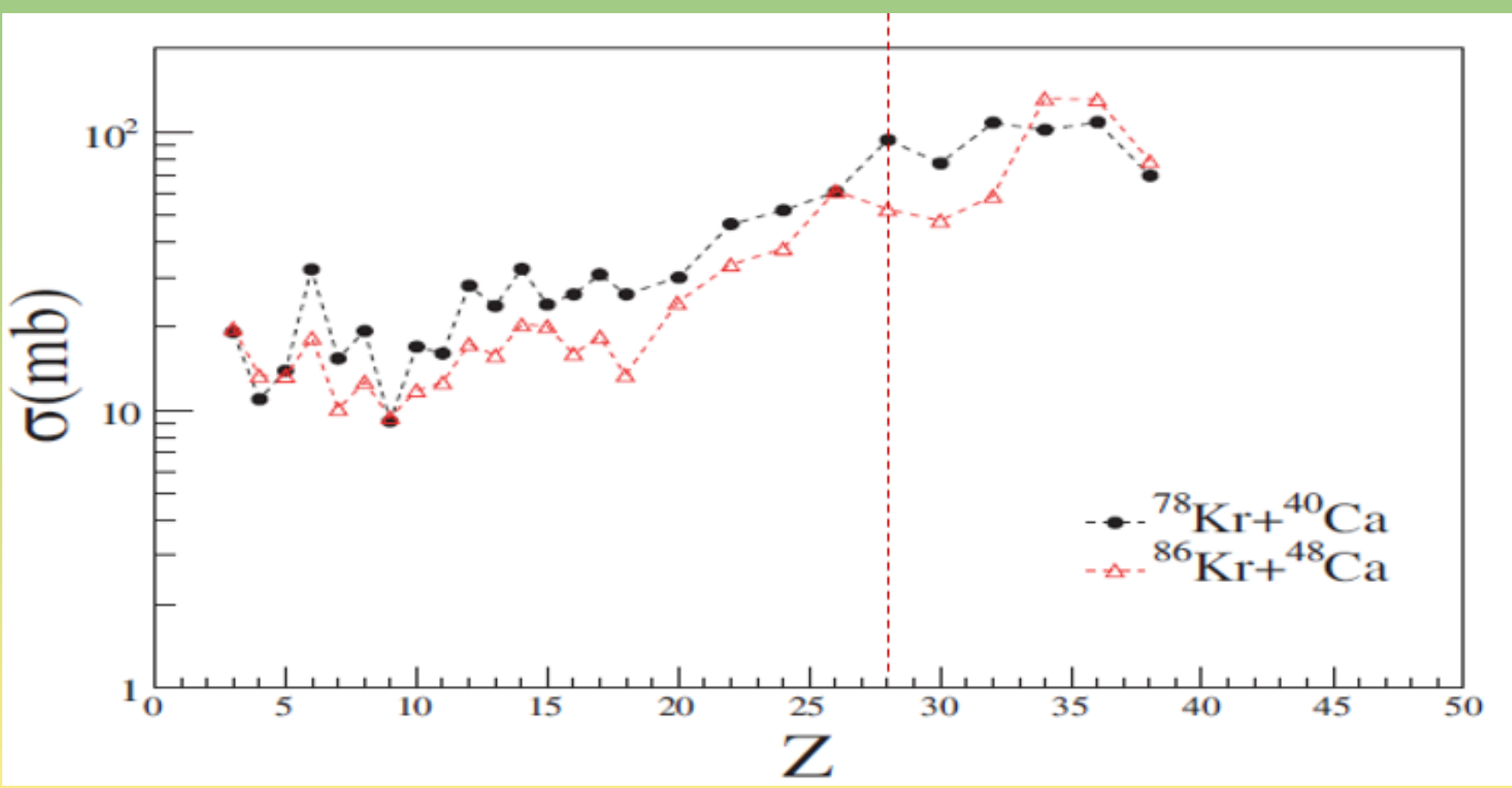
Fission-Like



Comparison with DNS, GEMINI++ and HIPSE+GEMINI++



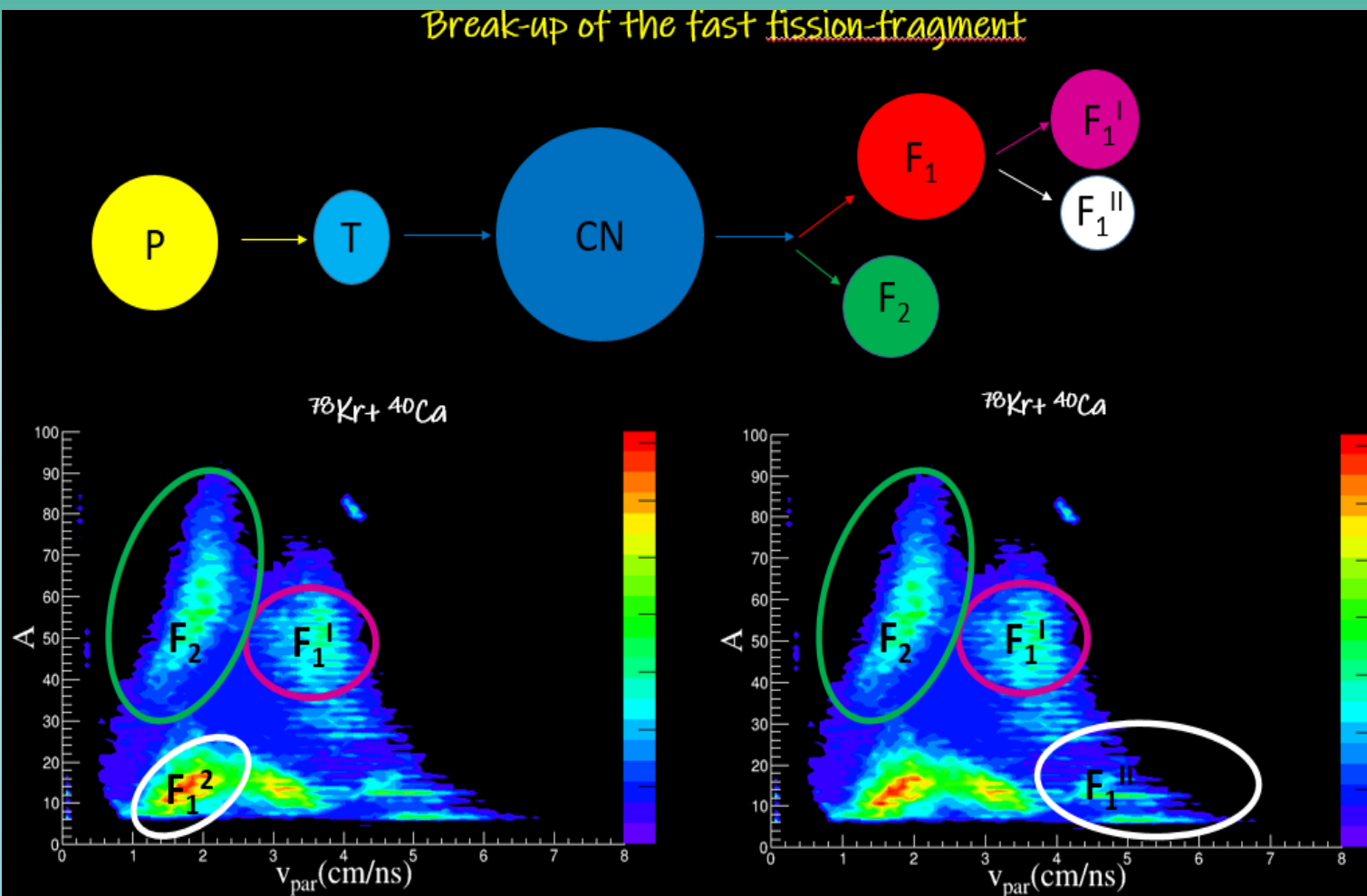
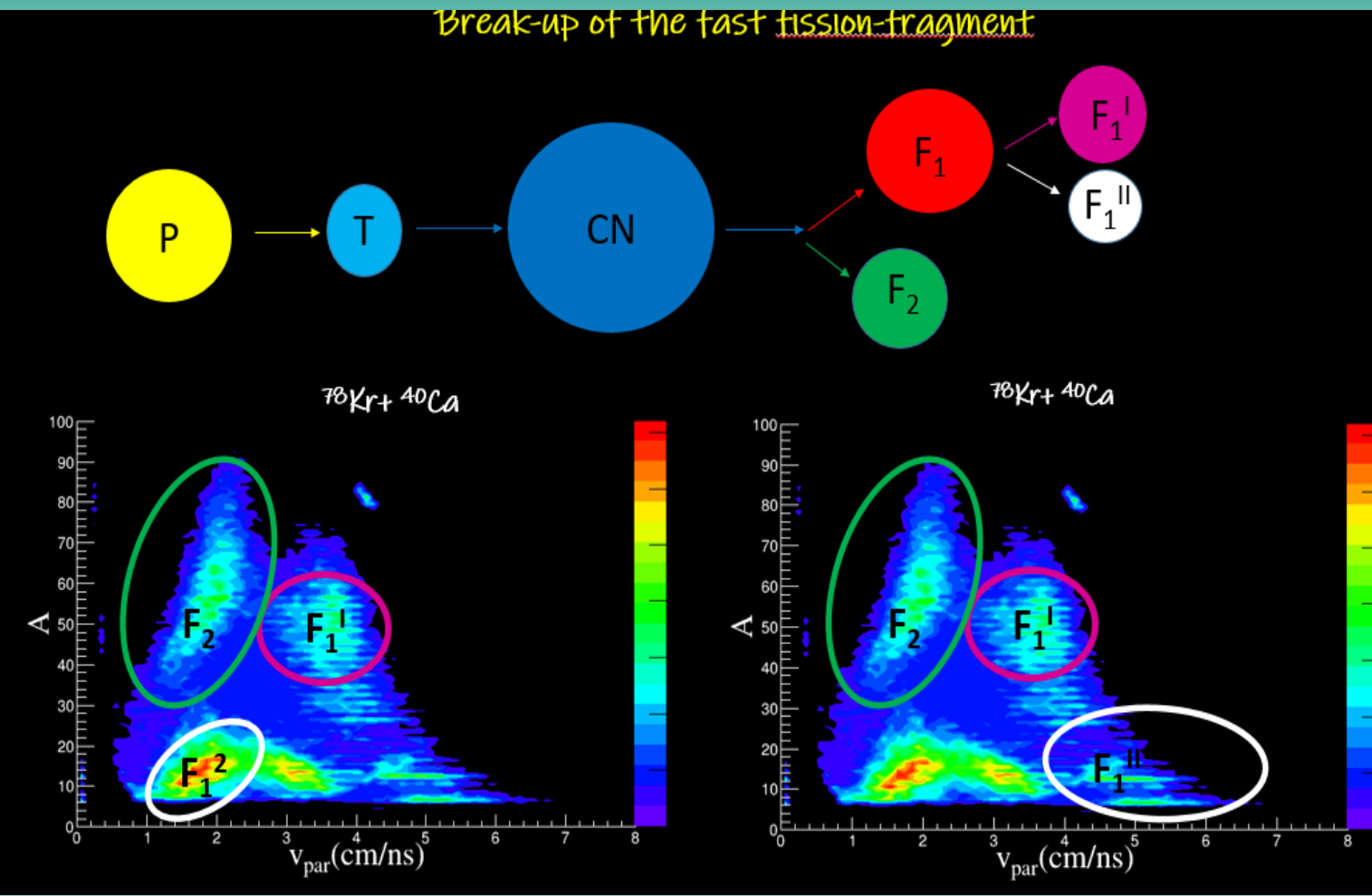
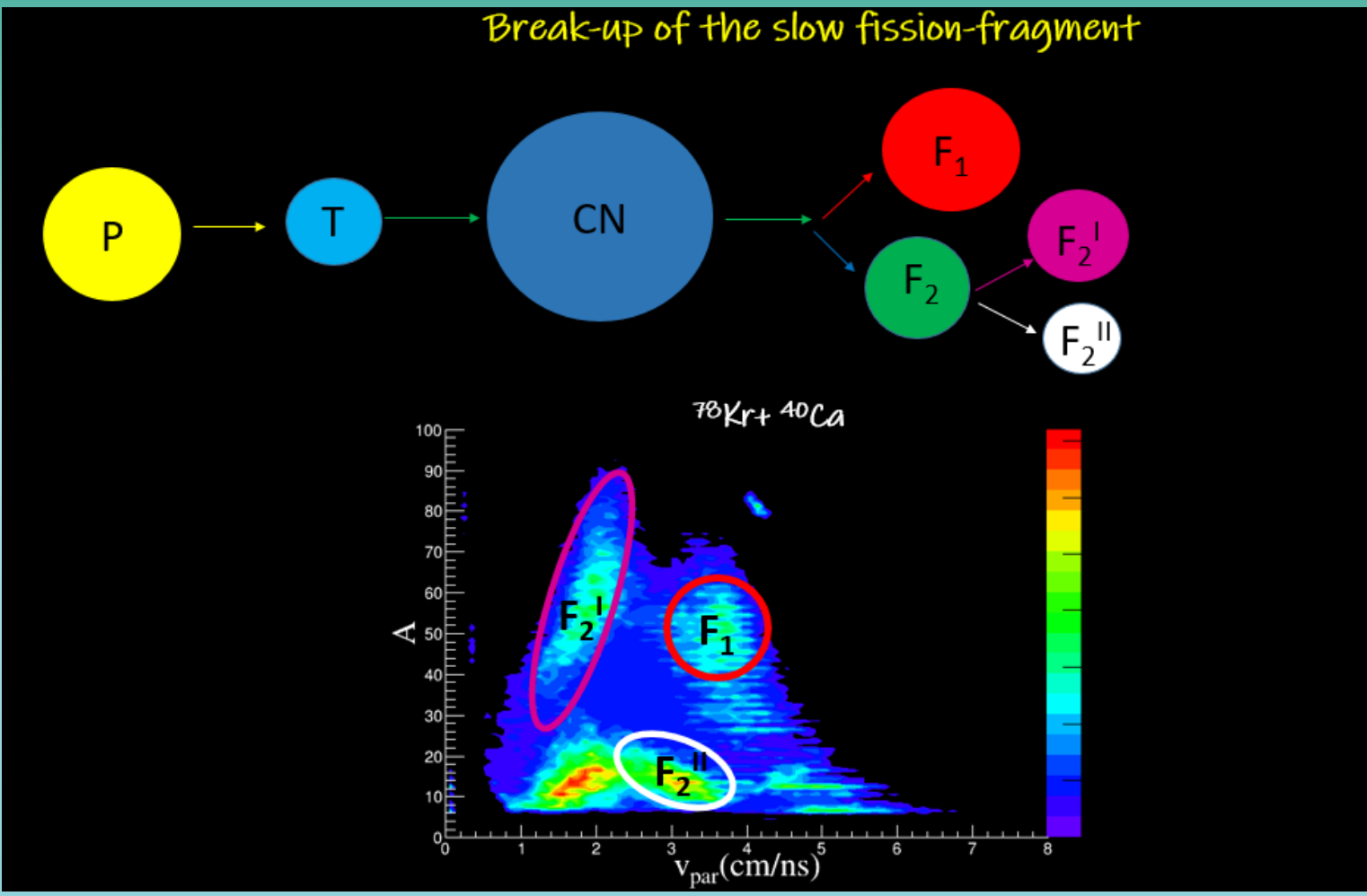
Main Results



	$\sigma_{ER}(\text{mb})$	$\sigma_{FL}(\text{mb})$	$\sigma_{Fus}(\text{mb})$	$\sigma_{Reac}^{qp}(\text{mb})$
$^{78}\text{Kr}+^{40}\text{Ca}$	455±70	850±120	1305±190	2390±250
$^{86}\text{Kr}+^{48}\text{Ca}$	400±60	530±85	930±145	2520±260

Break-up of the projectile

Reaction mechanisms filling the same region of the phase space



Main Results

