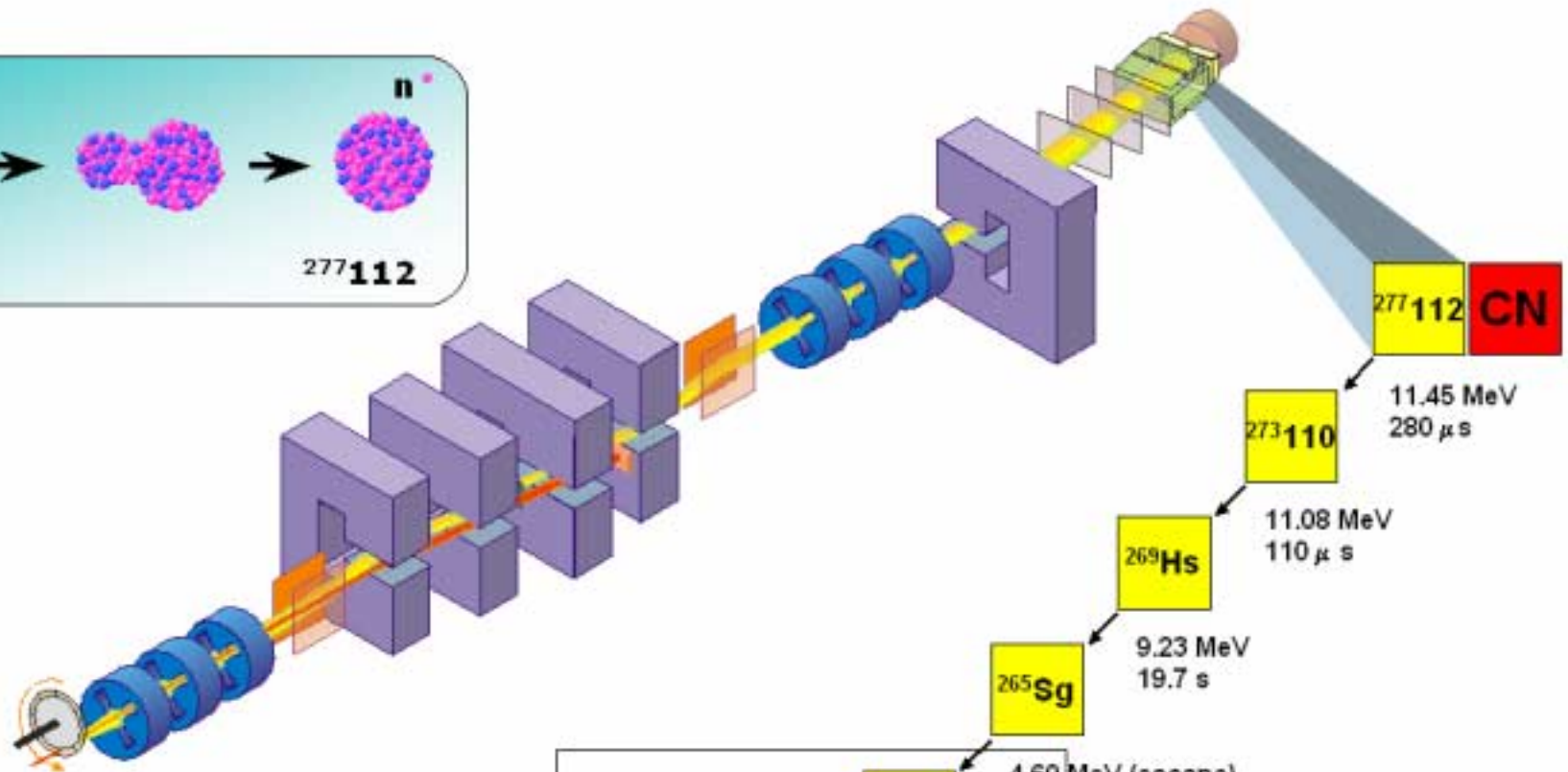
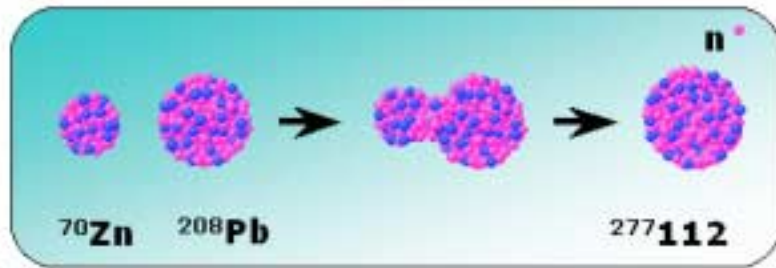
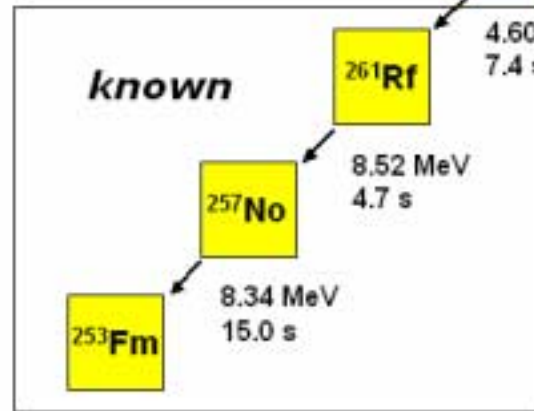


The Velocity Filter SHIP11



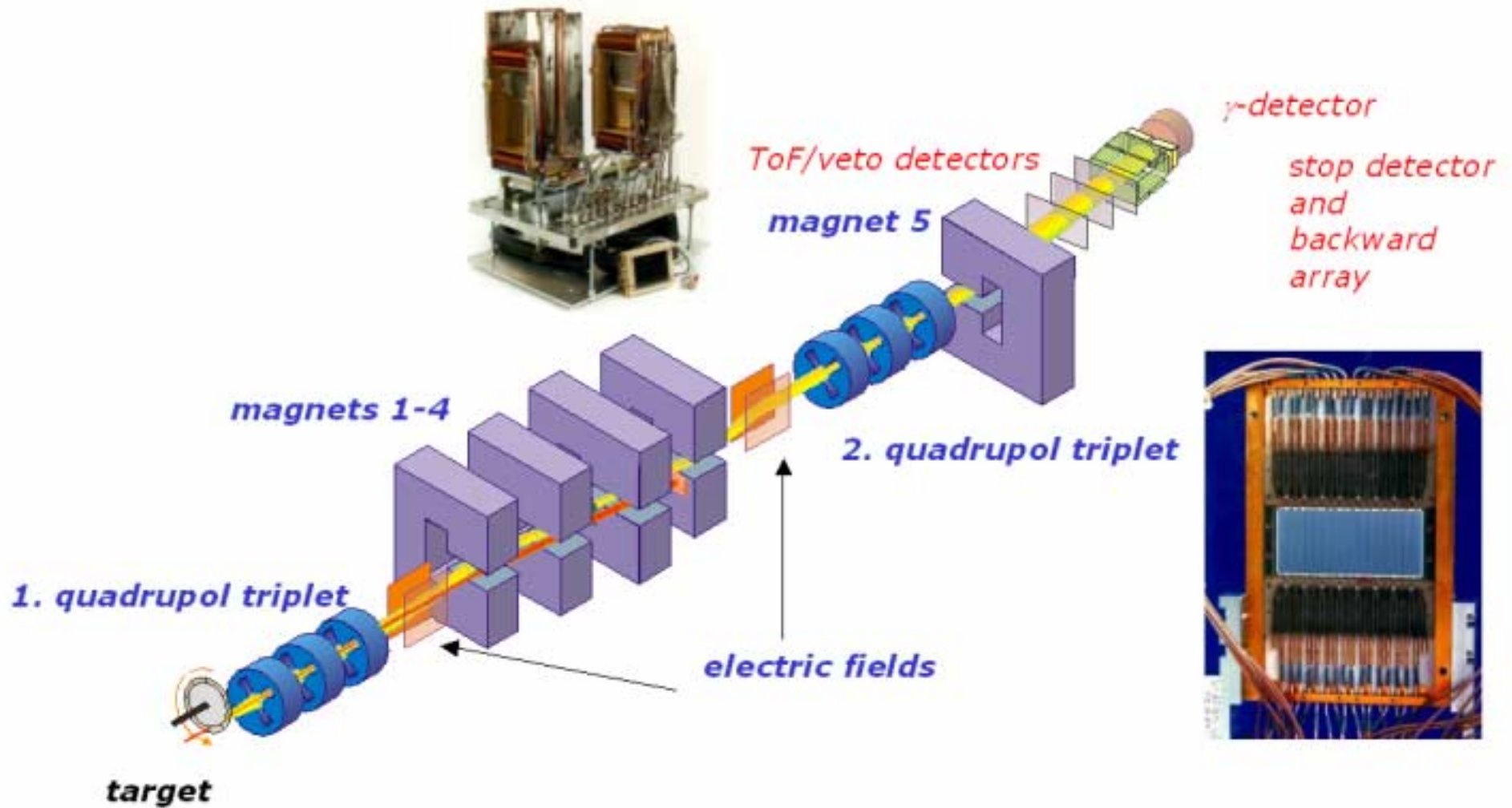
*kinematic separation
in flight*



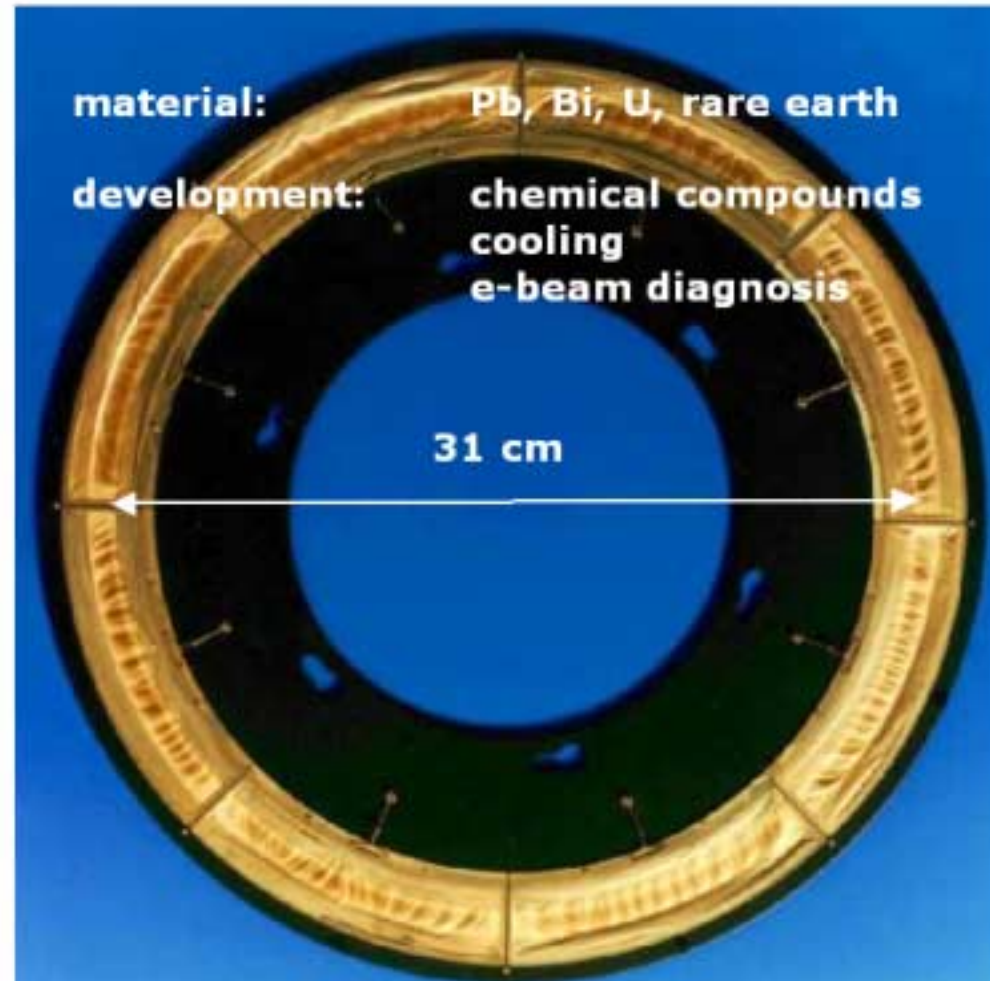
*Identification via
 α - α correlations
to known
nuclides*

Datum: 09-Feb-1996
Uhrzeit: 22:37 h

The Velocity Filter SHIP



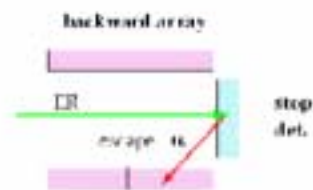
The Target Wheel



Stop- und Backward-Detector Array



Stop- and backward array



Parameters:

VR:

position, time, energy
- in the stop detektor

α 's:

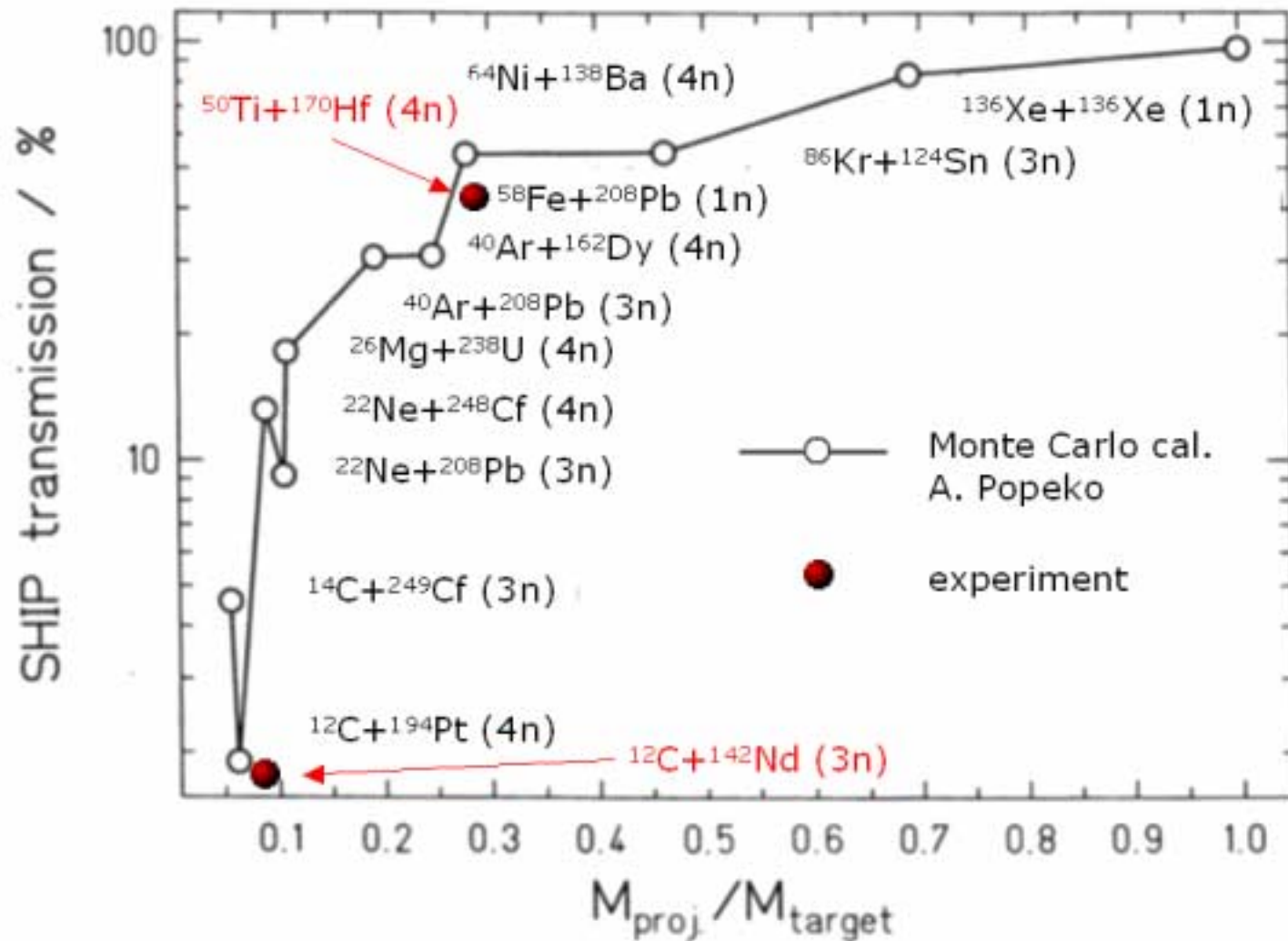
position, time, energy
-in the stop detektor

or (in case of an escape α):

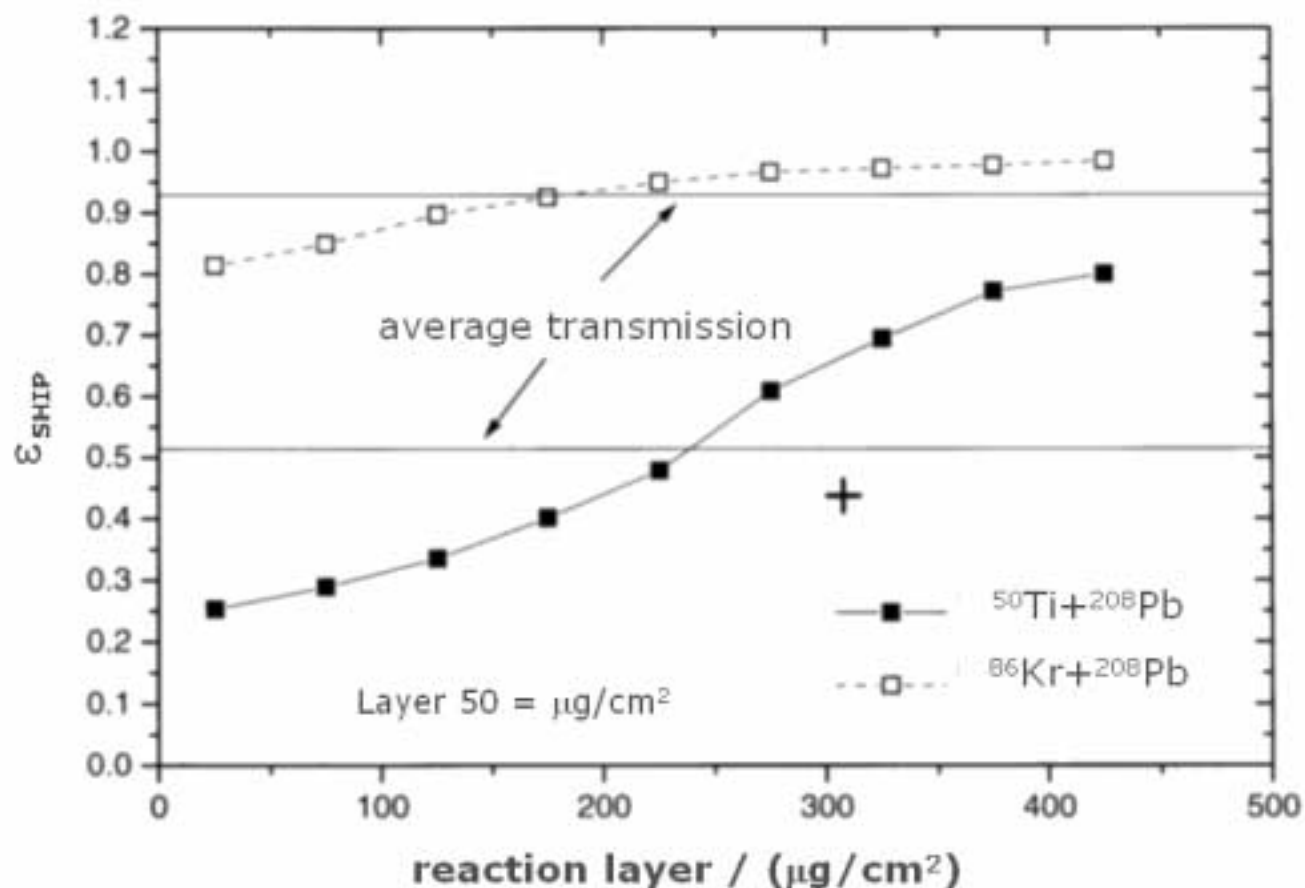
position, time, partial energy
-in the stop detektor
and position, time, residual energy
-in the backward array



The SHIP Transmission 1



SHIP Transmission as a Function of the Location of the Reaction in the target



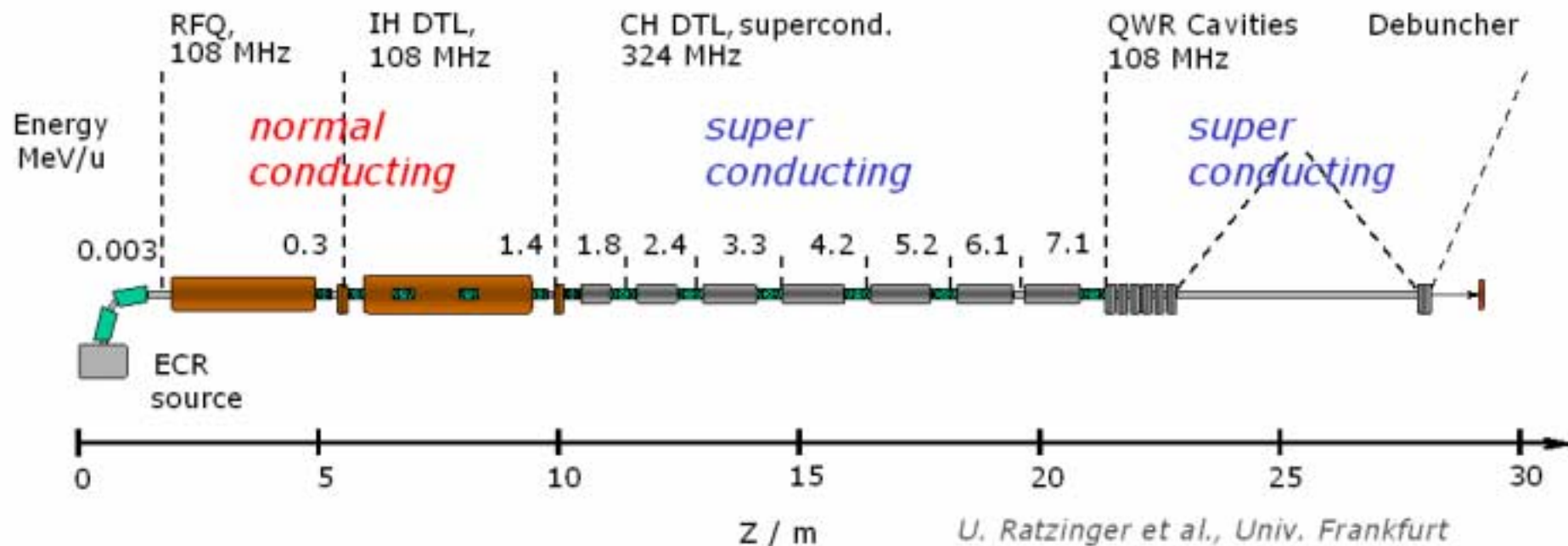
Project for a superconducting CW-linac

- **dc beam**
- $1 < A/q < 7$
- $E_{\text{beam}}: 4\text{-}7.5 \text{ MeV/u}$
- $dE_{\text{beam}} < \pm 3 \text{ keV/u}$

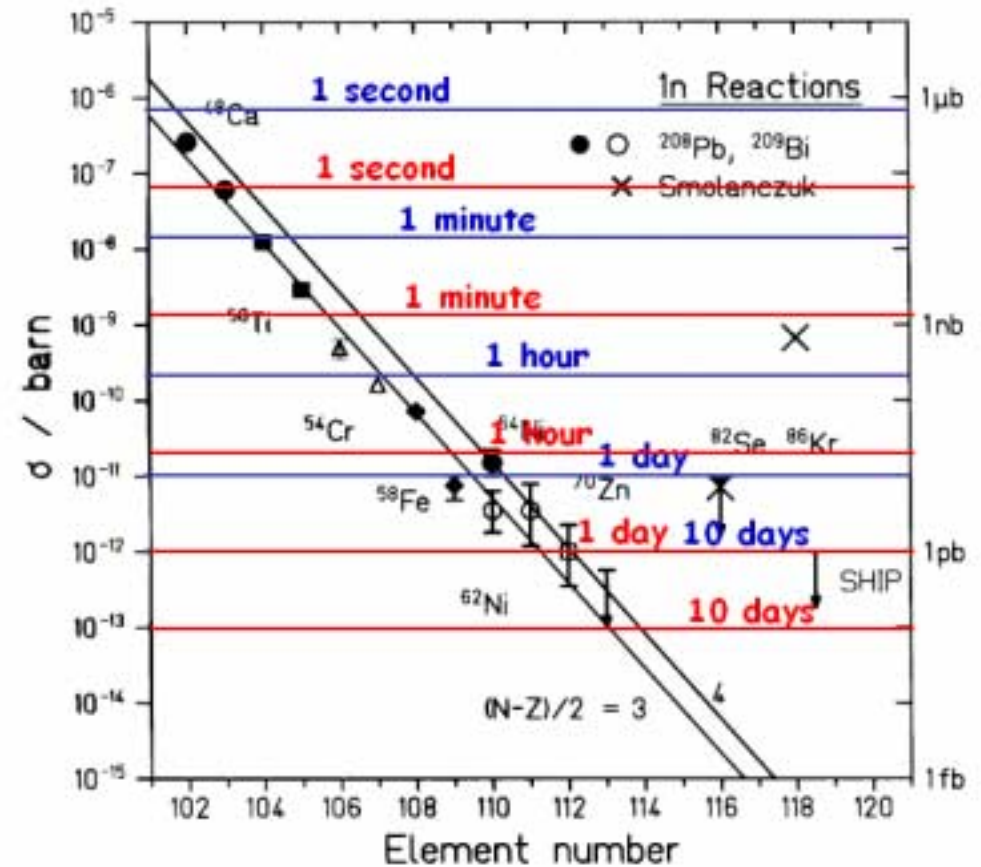
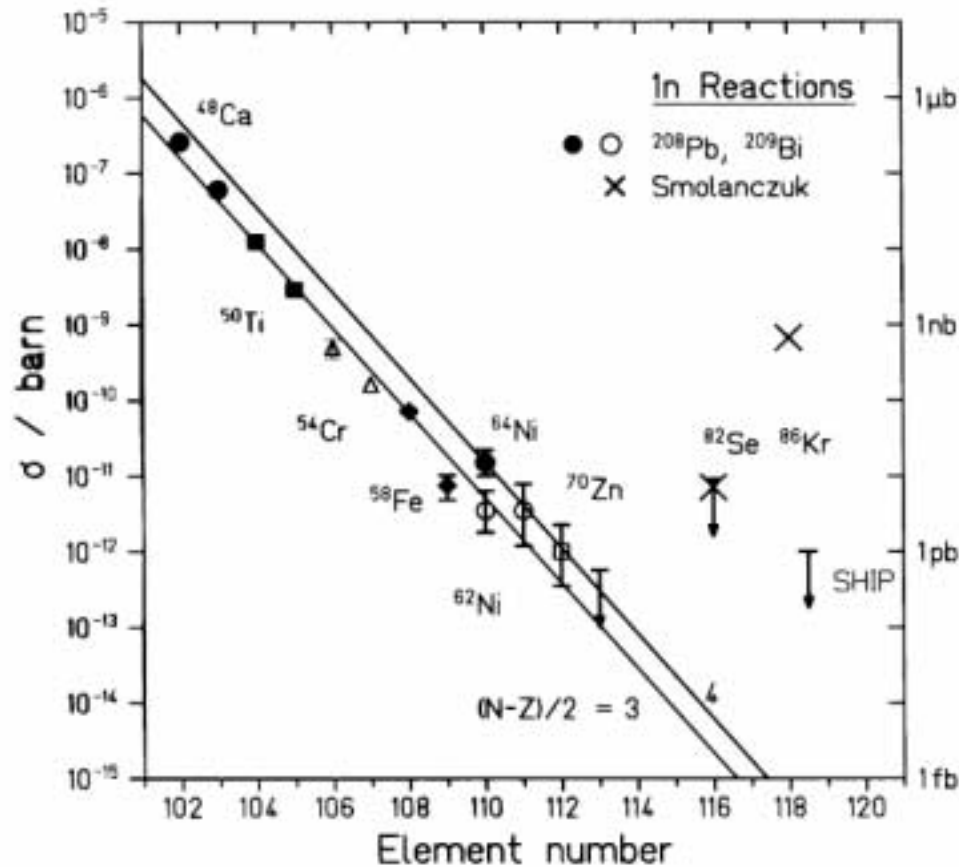
Intensity gain:

- Duty cycle 30% → 100% 3.5
- 30GHz ECR-source 2
- increased stability (65% → 85)% 1.3
- shorter shutdowns (107 d/y → 47 d/y) 1.2

Total gain 11



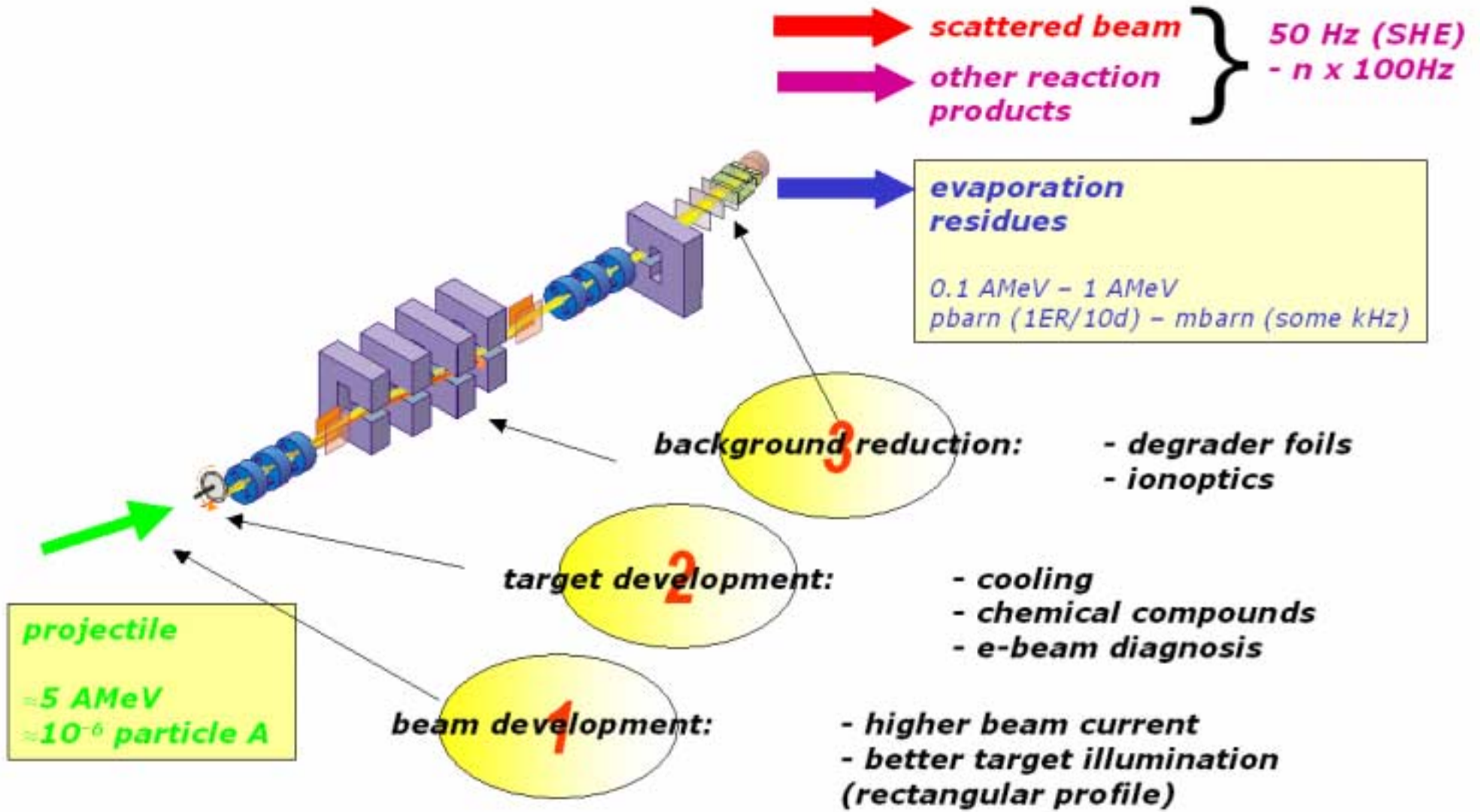
Cross Section Systematics



•time limits for the actual efficiency of the set-up

•time limits for a set-up with a 10 times improved efficiency

SHIP Development



$^{58}\text{Fe} + ^{209}\text{Bi} \rightarrow ^{267}\text{Mt}^*$
- an Example Chain

GSI:

S. Hofmann
F.P. Heßberger
R. Mann
G. Münzenberg (Univ. Mainz)
D. A. (Univ. Mainz)

B. Lommel (targetlab)
B. Kindler (targetlab)

J. Kojouharova (guest)

P. Cagarda (Ph.D. student)
S. Antalic (Ph.D. student)

H.-G. Burkhard (mechanics)
H.-J. Schött (electronics)

The collaboration

JINR-FLNR Dubna, Rußland:

A.G. Popeko
A.V. Yeremin

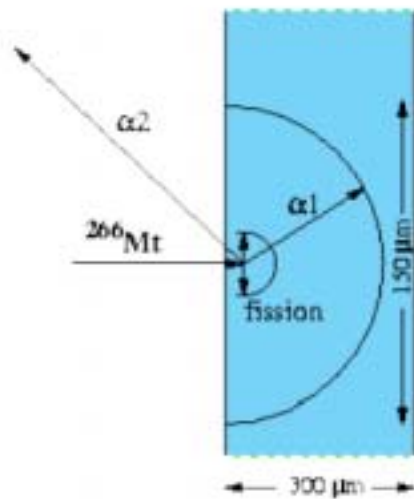
Universität Bratislava, Slovakei

Š. Šaro

Universität Jyväskylä:

M. Leino
J. Uusitalo

$^{58}\text{Fe} + ^{209}\text{Bi} \rightarrow ^{267}\text{Mt}^*$ - an Example Chain



detector: 80 mm x 35 mm x 300 μm
 pixel: 5 mm x 150 μm
 ΔE_{α} : 14 keV (FWHM)



date: 29-Aug-1982
 time: 16:10 h

