

Details of BigRIPS relevant to EURICA proposals

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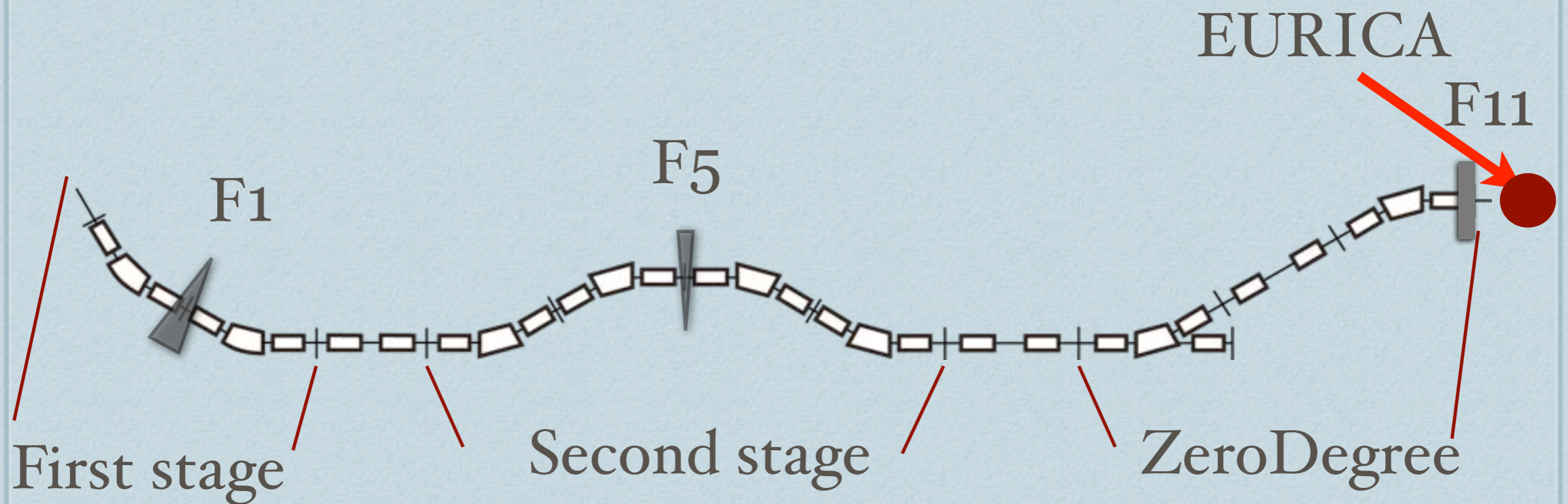
- ❖ RI beam estimation at BigRIPS (^{238}U)
- ❖ Overlap (cocktail beam & physics cases)
- ❖ Tentative schedule of proposal submission and PAC meeting
- ❖ Other informations (New isotope search & Test exp. of slowed down beam)

RI beam estimation at BigRIPS

Primary beam: ^{238}U

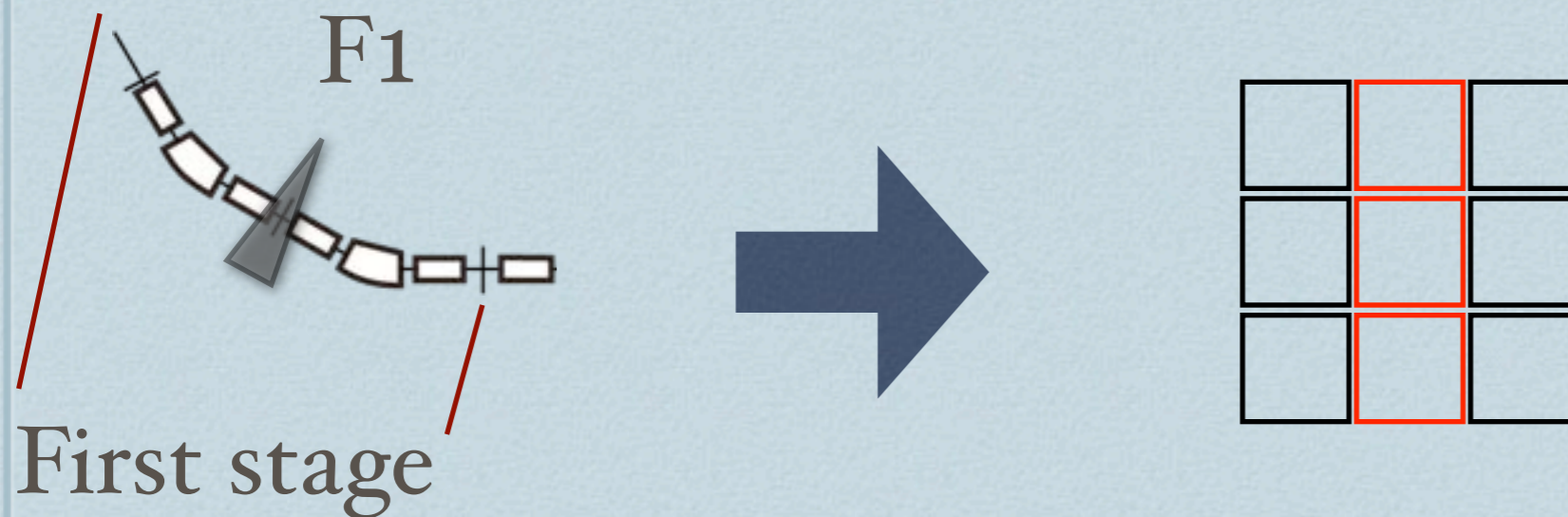
BigRIPS and ZeroDegree

- ❖ First stage: RI beam separation
Second stage: Selection of fully stripped ion
- ❖ RI beam identification
Second stage of BigRIPS and ZeroDegree



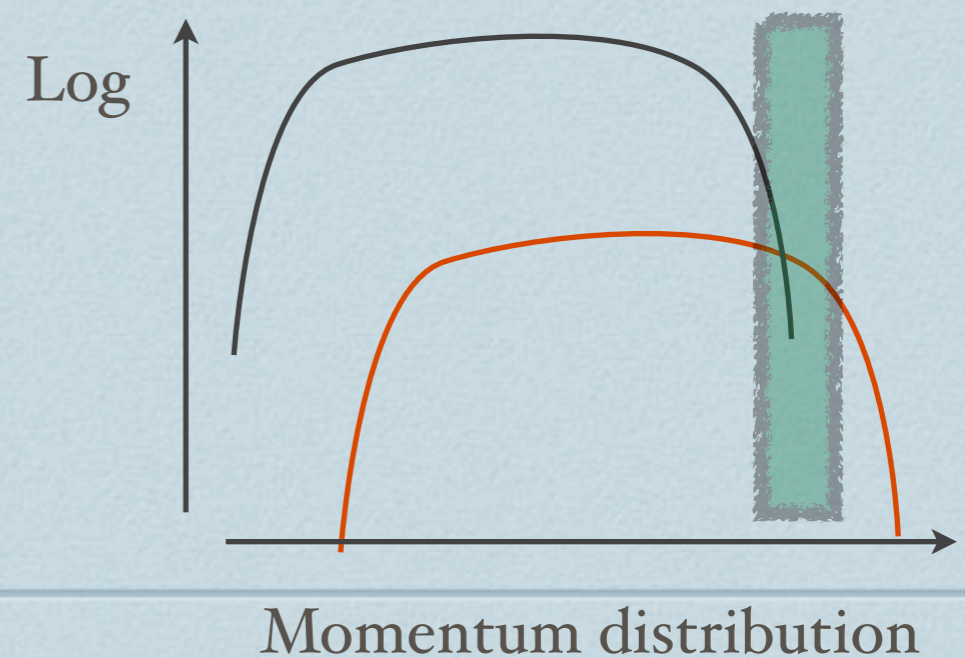
Separation at first stage

- ❖ Total yield should be less than **100 pps** to make surely a correlation between implantation and beta decay and to prevent radiation damage for Si stopper.
- ❖ All of beam line detectors work at 100 pps.
- ❖ Selection of **isotones** at RIBF energy, 345 MeV/u.



Separation at first stage

- ❖ Broad momentum distribution in case of in-flight fission fragment
- ❖ Higher Brho value at D1
Reduce total rate & Improve purity
- ❖ Use thinner target than yield optimized one.
For example, 3 mm thick Be target
Improve purity, and then result in higher yield under the total rate limitation.

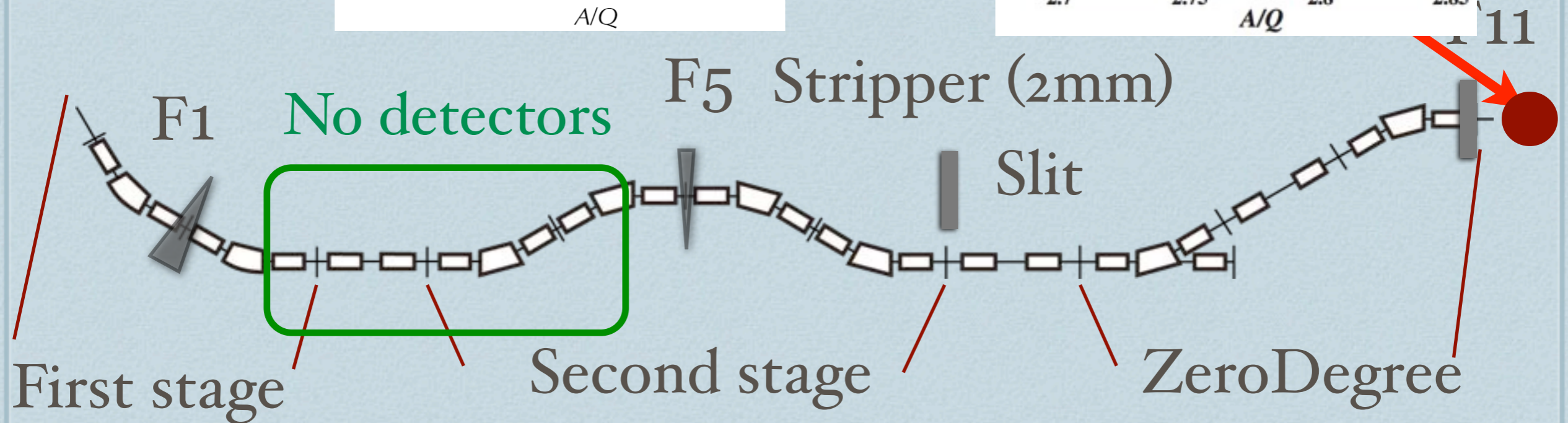
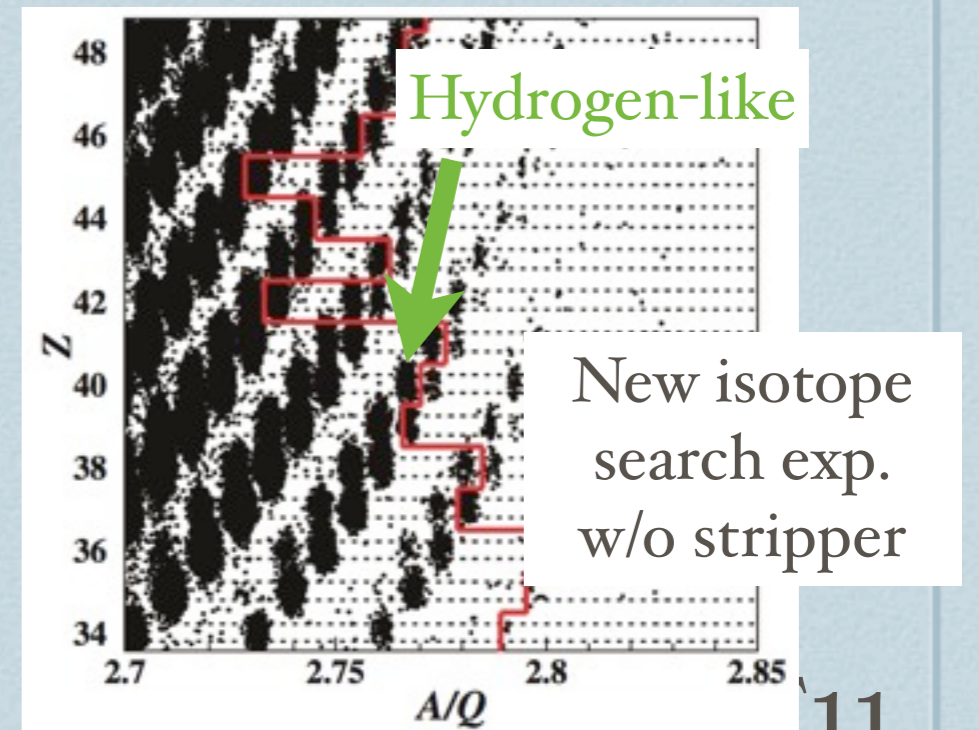
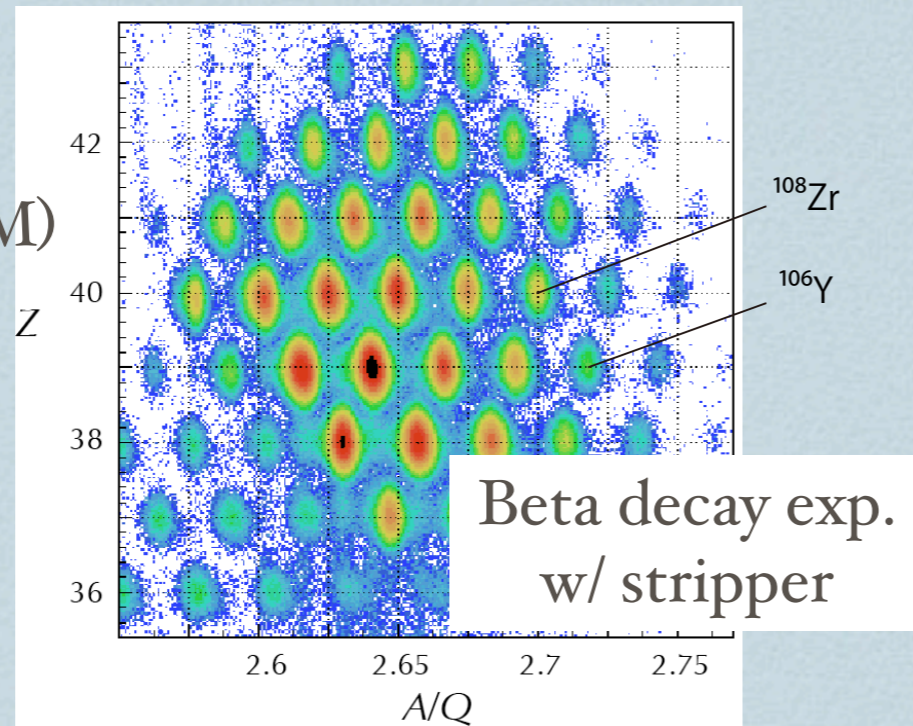


Selection of Fully stripped ion

- ❖ Charge stripper at F5 for hydrogen-like ion

Resolution (FWHM)

$Z: 0.4,$
 $A/Q: 0.005$

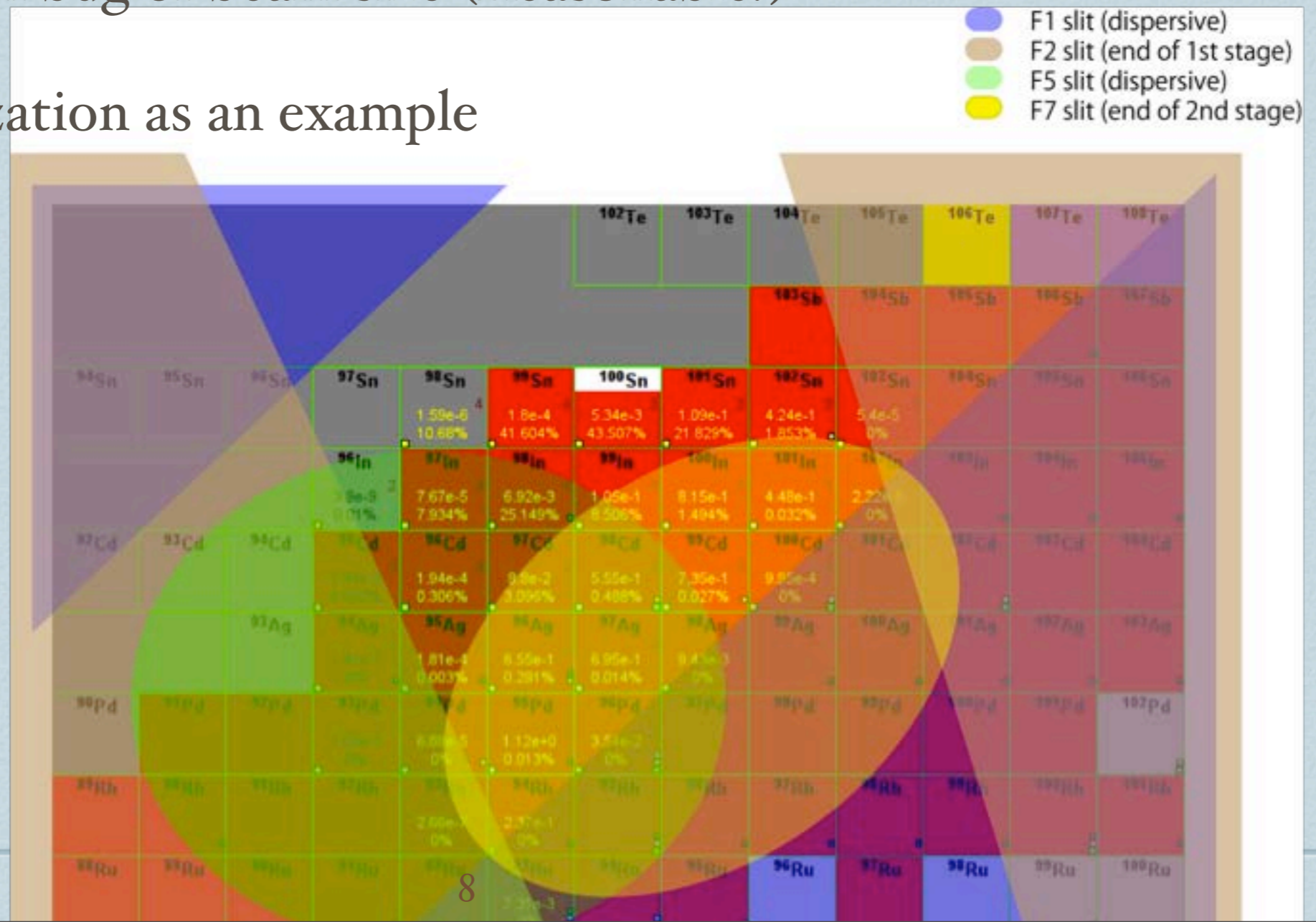


Separation of proton-rich region

- ❖ Cross section and Separation method
Not established. To be performed at this Dec.
- ❖ Two stage separation?
Be careful in bug of beam size (Reasonable?)

- ❖ My optimization as an example

^{124}Xe 5 pA
 ^{100}Sn : 5.3×10^{-3} pps
 450 ppd,
 Total: 70 pps

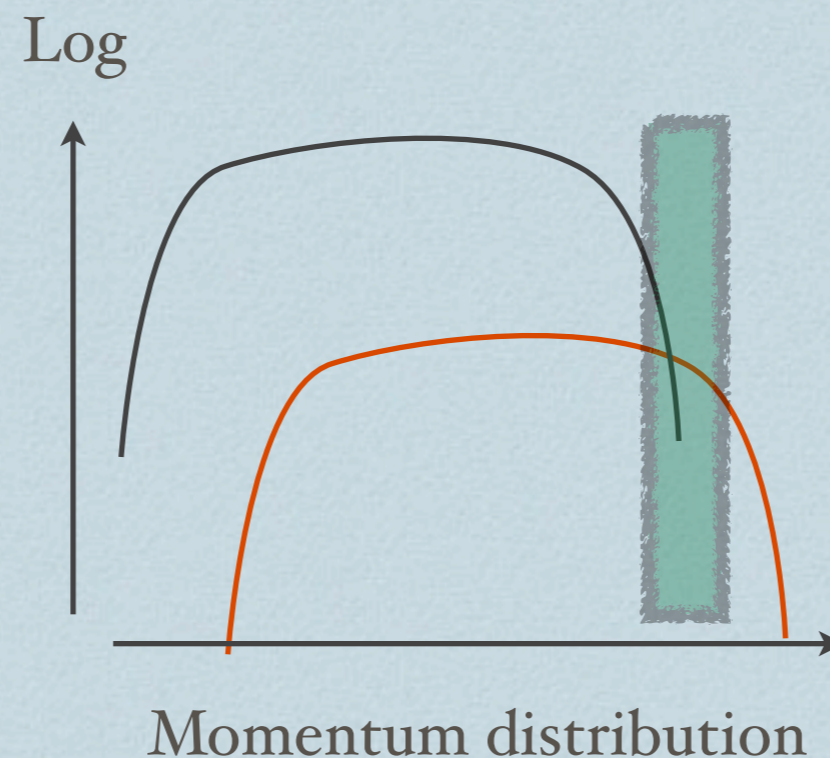


Overlap issue

Cocktail beam & Physics cases

Cocktail beam

- ❖ Boundary condition (Total rate; 100 pps)
- ❖ 20 or 30% increase
1-order-higher total rate; need narrow slit (region)
- ❖ Wide cocktail beam is basically effective.
A few proposals can be combined.



Request about proposal information

- ❖ Brief summary of proposal within 1 (or 2) page
 - ❖ Nuclei & physics cases
In case of beta decay: ${}^{\delta I}\text{Cu}({}^{\delta I}\text{Zn})$
 - ❖ Indication of most interest nuclei to optimize RI beams
 - ❖ Required total yield for each nucleus
Rate and beam time
- ❖ LISE++ file

Overlap issue

- ❖ Comments about secondary beam setting
- ❖ A few proposals can be combined to reduce a total beam time, in other words to perform many proposals within an available beam time.
- ❖ Overlap of physics cases.
Collaboration Board

Tentative schedule of proposal submission and PAC meeting

Tentative Schedule

- ❖ Sep. 15, Call for proposals
 - ❖ Oct. 20, Deadline of submission
 - ❖ Dec. 9-10 (Fixed), PAC meeting
-
- ❖ Sep. 19?, Brief summary
 - ❖ ASAP (Sep. 30?), evaluation and comments
 - ❖ Oct. ???, Draft of proposal
 - ❖ Oct. 20, Proposal submission

Procedure of beam time

- ❖ Beam time request for half year
- ❖ Machine time (MT) committee assigns beam time.
Use grade given by NP-PAC.
To be discussed: Contribution from EURICA
collaboration
- ❖ Planning sheet for safety check and collaboration list
- ❖ During experiment, daily meeting
Spokespersons, Chair of MT committee, Accelerator
and BigRIPS staffs

Other informations

New isotope exp.

Test exp. of slowed down beam

New isotope search experiment using ^{238}U

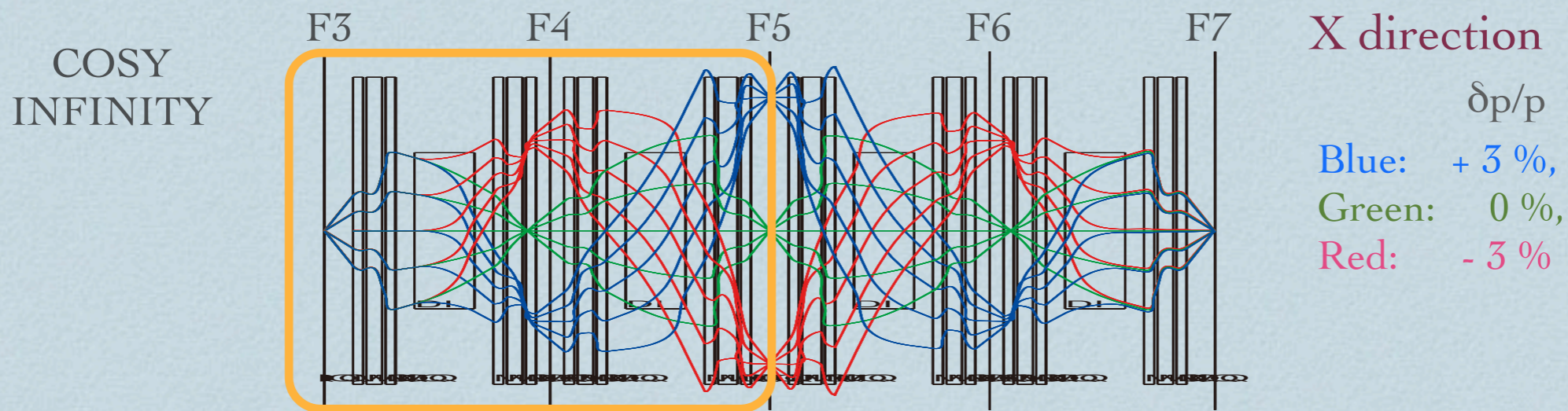
- ❖ Neutron-rich region from $Z = 20$ to 65
Workshop on isomer search at Sep. 8
Information of WS was sent to RIBF users group.
- ❖ Date of Exp.: October 17 - 31 (3 days for each region)
- ❖ RI beam setting is optimized for new isotope search
- ❖ Isomer search as byproducts: 4 clover Ge detectors.
- ❖ Possible to join this collaboration.
- ❖ Details: ask me

Test Experiment of slowed down beam

❖ ^{108}Mo with energy of 5 MeV/u

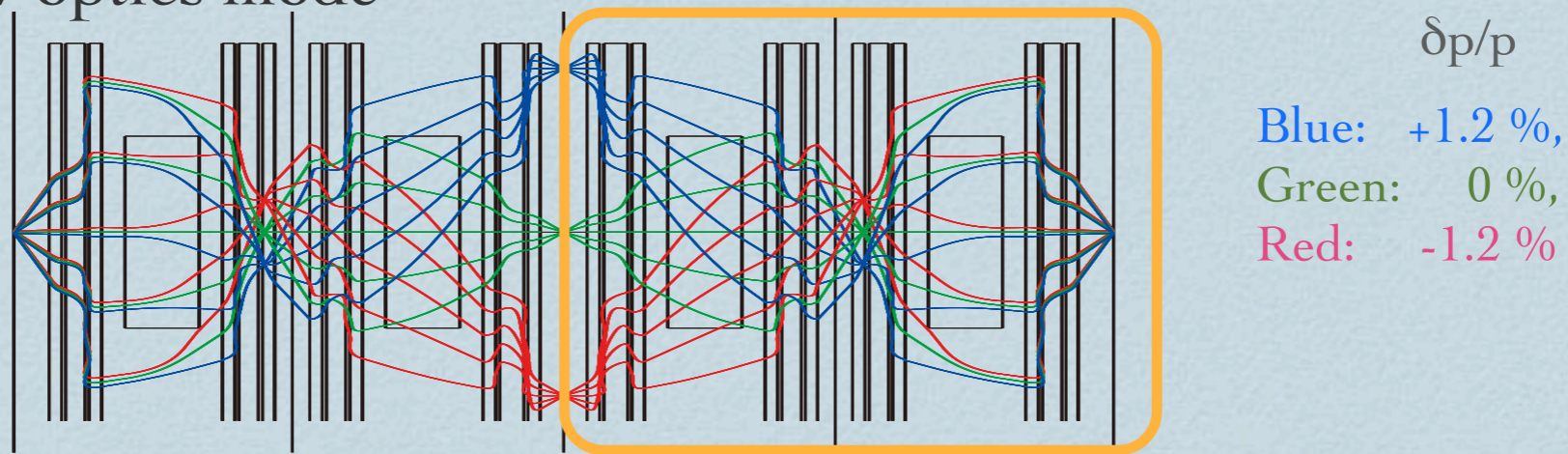
T. Sumikama
E. Ideguchi

☞ Standard optics mode



$$\delta p/p \pm 3\% \quad \longrightarrow \quad \pm 1.2\%$$

☞ New optics mode



Test Experiment of slowed down beam

- ❖ ^{108}Mo with energy of 5 MeV/u
- ❖ November 27-28, at the end of Uranium campaign

