

Physics priorities for target R&D

Standing group for the Upgrade of ISOLDE

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Realized developments

- ✓ Molecular SeCO^+ beam
 - REX-ISOLDE: IS405 (^{70}Se) [→ new CO beams]
- ✓ Quartz transfer line
 - REX-ISOLDE: IS411 (n-rich Cd) / IS412 ($^{76-80}\text{Zn}$)
 - IS413 Mass measurements Zn/Cd [not fully successful]
 - IS393 Cd Decay spectroscopy
- ✓ Carbon coating
 - REX-ISOLDE: IS412 (Ni) [low yields, ongoing]
- ✓ Offline ^7Be beam
 - IS366 (p, γ), IS391 Radiotracers [ongoing]

Realized developments

- ✓ Molecular $^{34}\text{SSn}^+$ beam
 - IS441 Fast timing
 - IS413 Mass measurements
- ✓ REX-ISOLDE slow extraction
 - Up to 400 μs
- ✓ RILIS
 - Au (I60 → IS447)
 - Hg (efficiency measurement) [lower limit]

Priority 1 needs [Approved experiments]

REX-ISOLDE

- ✓ ^{17}F IS424 LaF^+/F^+ ongoing
- ✓ n-rich Ba IS411 BaF^+ EBIS problem 2006
- ✓ n-rich Te IS411/IS415 Quartz/RILIS
- ✓ ^{11}Li IS399 Yield...
- ✓ Sr beams [if approved] SrF^+ EBIS problem 2006
- ✓ $^{182-184}\text{Hg}$ [if approved] LoI Breeding/bckg

+ ongoing projects discussed above

Priority 1 needs [Approved experiments]

✓ n-deficient Mg, ^{21}Mg

→ IS427 COLLAPS

[ongoing: Ti, SiC yields vs. Na background]

✓ Br beams

→ IS431 NICOLE + I59 (decay)

[ongoing: negative ion sources]

✓ ^{62}Ga

→ IS413 ISOLTRAP + IS406 TAGS [ongoing: TiO_2 -free ZrO_2 , RILIS?]

✓ n-deficient Te beams

→ IS428 COMPLIS [ongoing: CeO + FEBIAD tested]

✓ MiniMono ECR source

→ IS445 (REX + decay), IS420 (decay), [IS413] [Offline tests]

✓ C beams

→ IS445 (REX + decay) [HfO target + MiniMono]

Priority 2 needs [Letters of intent]

✓ Po beams

→ LoI I57 In source spectroscopy [RILIS, scheduled 2006]

✓ Al beams (^{25}Al , $^{26\text{m}}\text{Al}$)

→ LoI I63 Astrophysics [SiC tested, AlF^+]

✓ Ge beams

→ LoI I58 REX-ISOLDE (GeS^+) [on hold]

Priority 3 needs [R&D]

✓ LIST

RILIS + suppression of alkalis [ongoing]

✓ Negative ion sources

LaB₆, KENIS, new developments [ongoing]

✓ Studies of nanomaterials

✓ Systematic studies of actinide targets

✓ EURISOL

→ Bi-valve target (multi-transferline)

→ BeO + n converter

→ Refractory metal (Ta) target

→ ...

✓ Other studies

→ Stress waves, temperature control, ...