

10 g scanning

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Prerequisites

- Ready by October 2018
- Scan in 2 months
- No time for R&Ds
- Deploy all the resources
- Optimize for better speed

Resources

- Japan:
 - PTS-2 - preselection, 7 g/year
 - PTS-3 - preselection, 15 g/year
- Napoli:
 - Mic6 – plasmon analysis, ~1 min/event -> ~1500 ev./day
 - Mic4 – used for R&D -> convert for preselection, 7 g/y
 - Mic1 – not in use -> convert for preselection, 7 g/y
- LNGS:
 - Have 1 microscope convertible for preselection, 7 g/y
- Total:
 - 5 microscopes for pre-selection ~43 g/y
 - 1 for plasmon analysis, ~1.5k ev./day

Scanning speed optimization

- Current conditions:
 - Preselection: 43 g/y => 10 g in 3 months
 - Plasmon analysis: 1.5k ev/day (actual ~750 ev/day)
 - 2 months => max 90k preselected events
 - Fog level ~0.1 => preselection selectivity should be $\sim 10^{-4}$
 - Current selectivity: $\sim 10^{-2}$
- Possibilities for preselection speed increase:
 - Try with the new (critical) illumination system
 - Stronger illumination => higher FPS => higher speed
 - Increase pixel size to 50-60 nm/pixel (like in Japan)
 - 28 -> 56 nm/pix => 4x field of view => ~4x faster
 - Move to blue light?
 - Same conditions as in Japan
- Possibilities for Plasmon analysis speed increase:
 - Time-limiting factor: volume scan around the prediction
 - Increase Z-position accuracy => less volume to scan