RILIS operation in 2022

Katerina Chrysalidis
On behalf of
RILIS

RILIS - runs

Run summary

LISA – Laser Ionization and Spectroscopy of Actinides.
This Marie Sklodowska-Curie Action (MSCA) Innovative Training Networks (ITN) receives funding from the European Union's H2020 Framework Programme under grant agreement no. 861198

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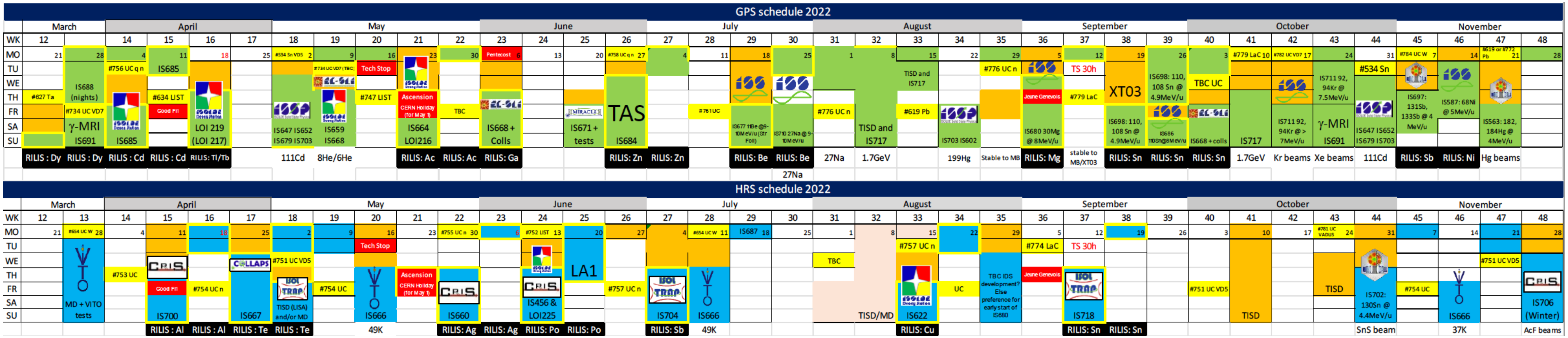

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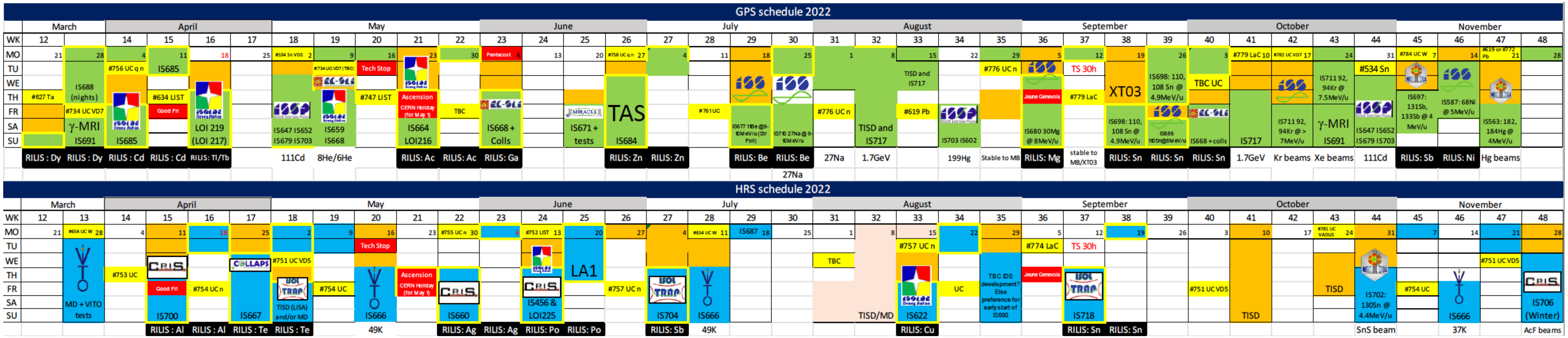

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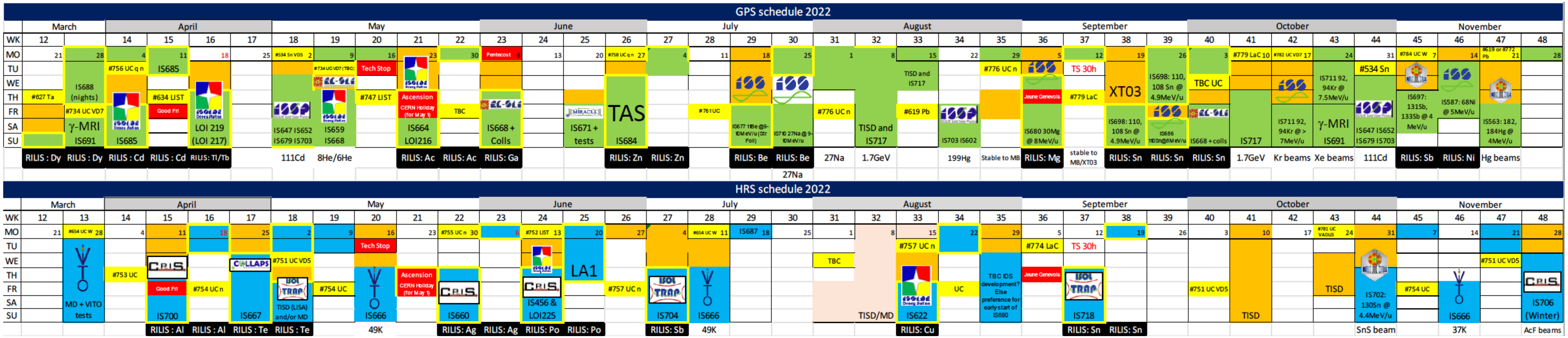

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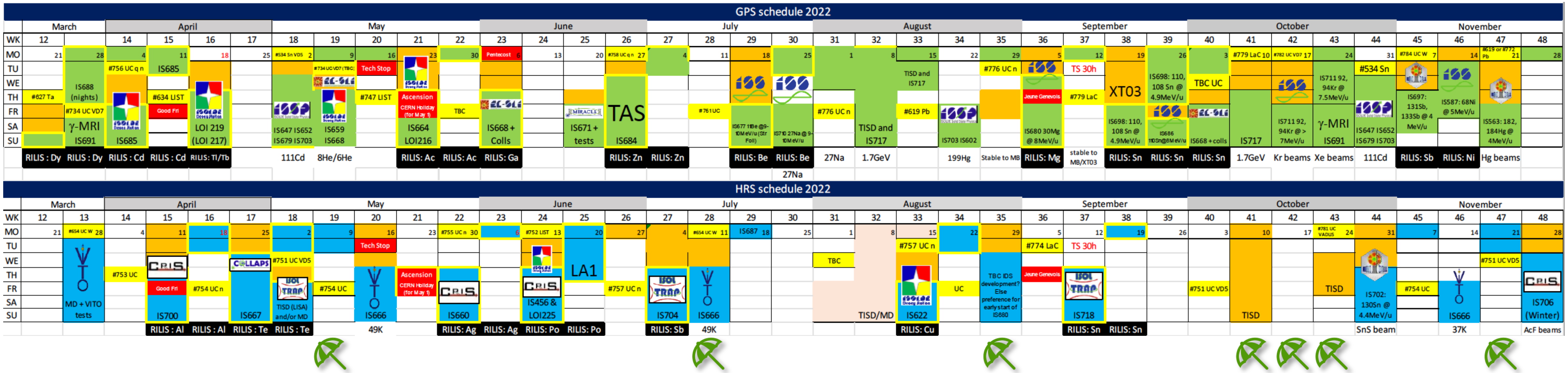

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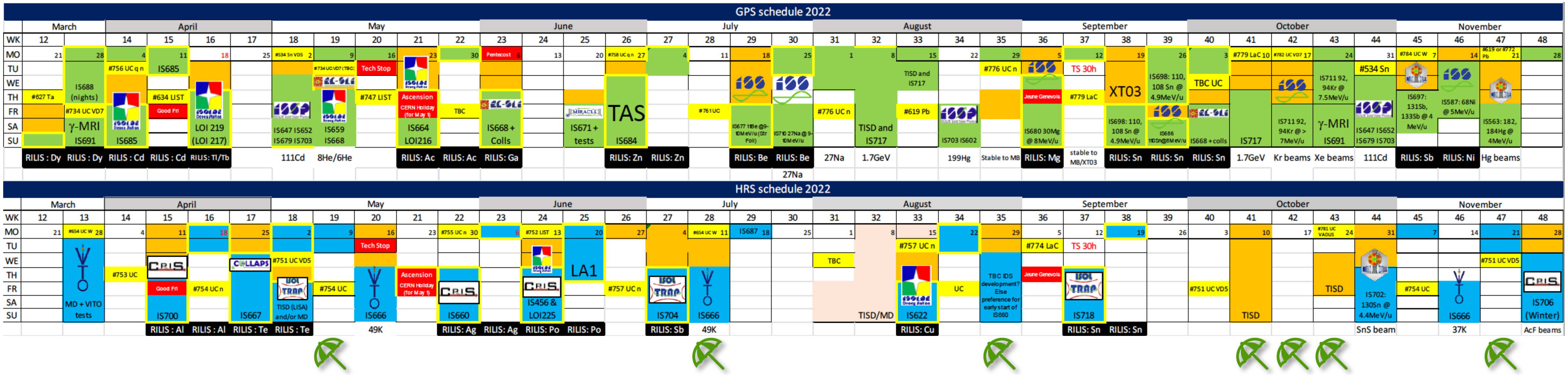

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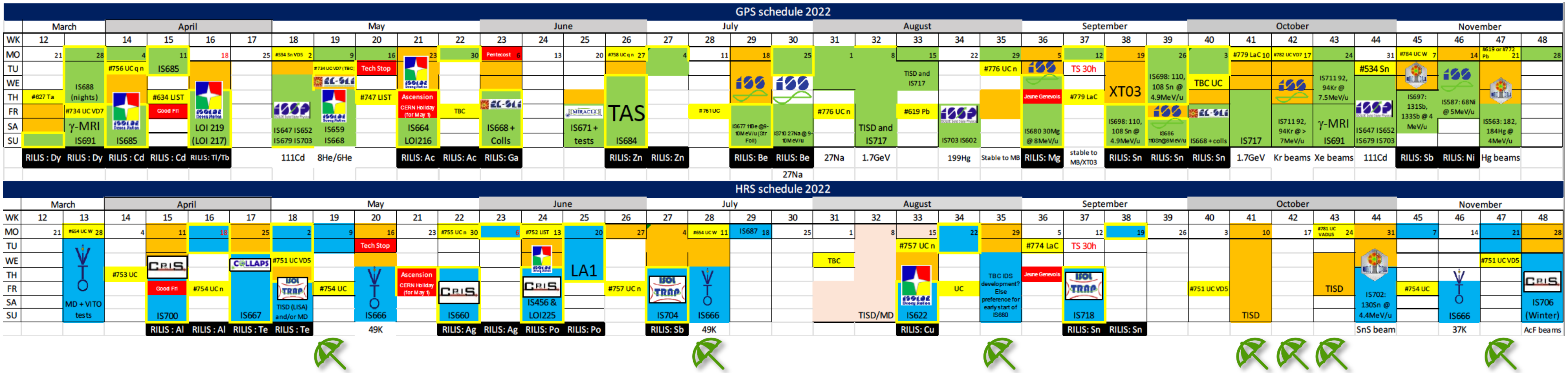

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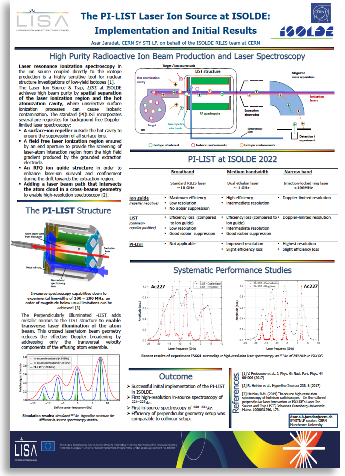

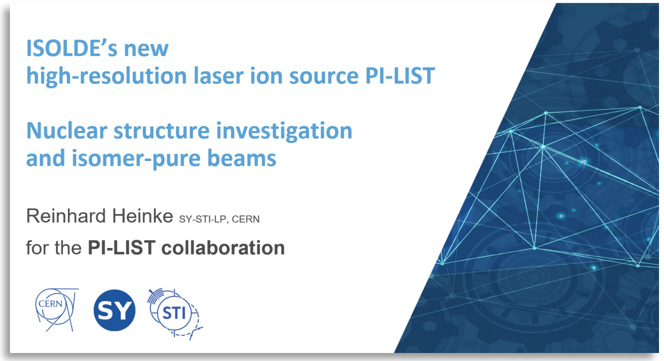

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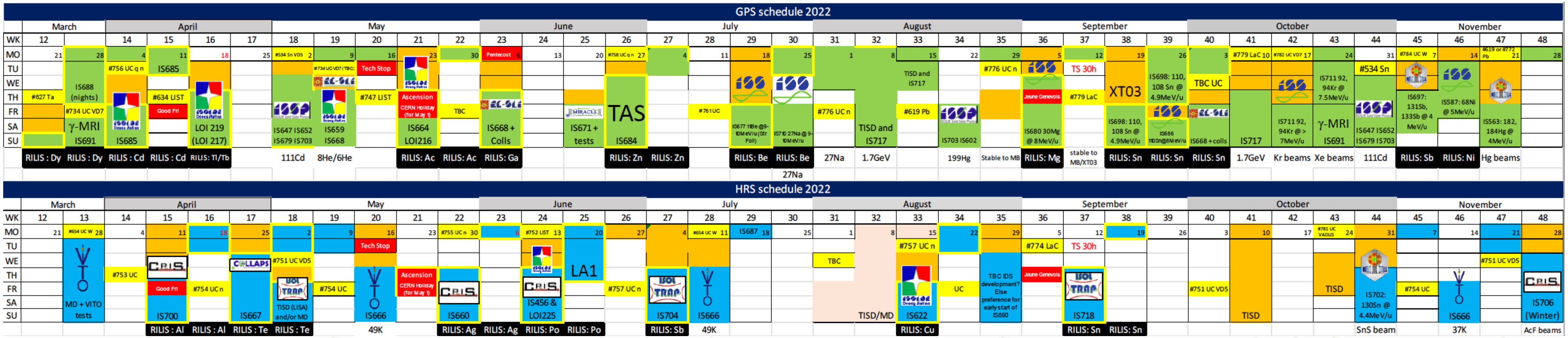

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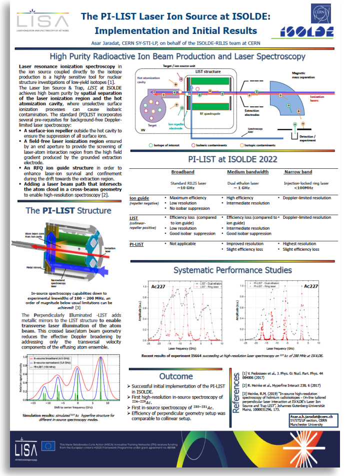

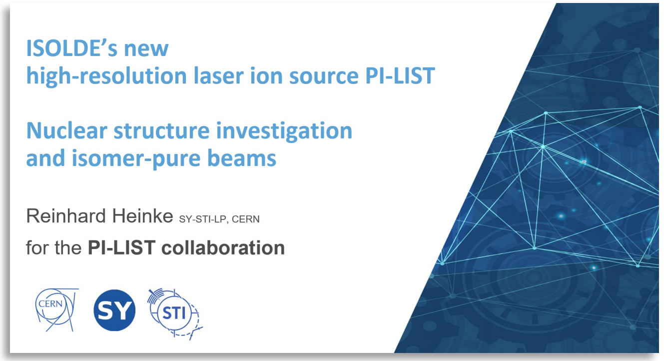

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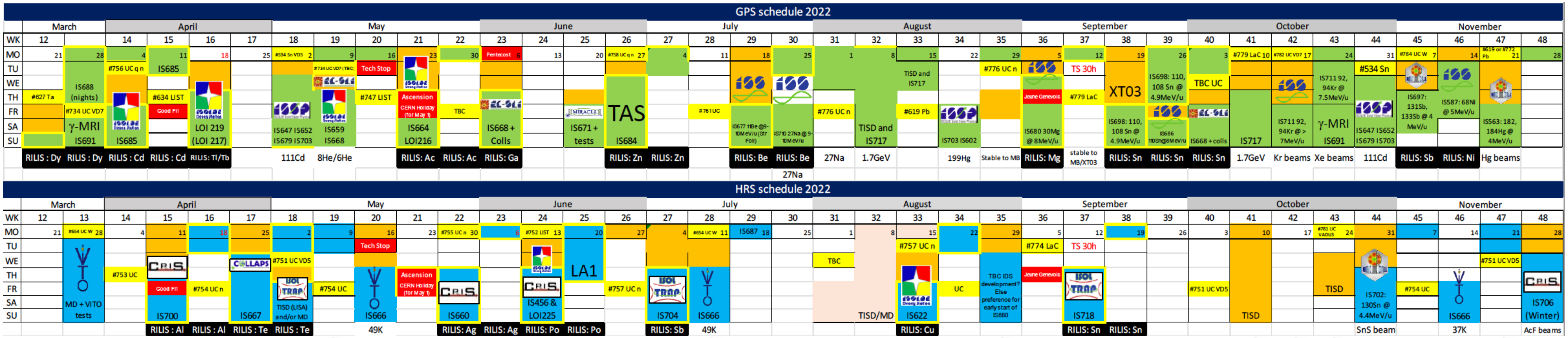

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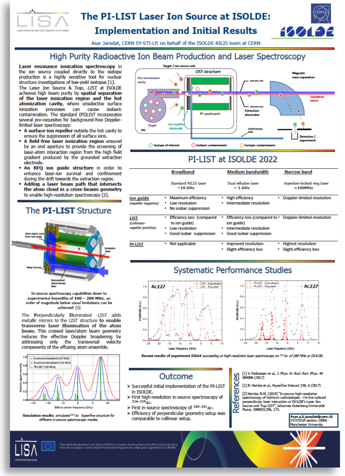

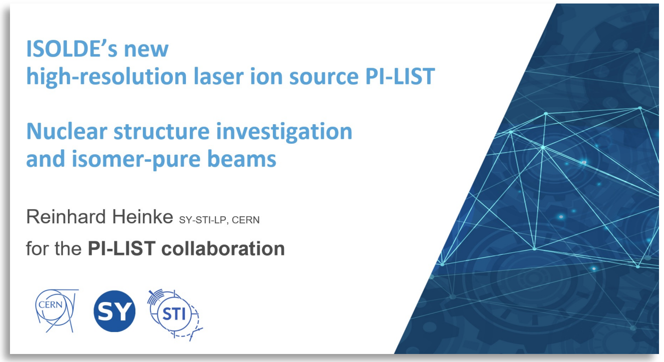

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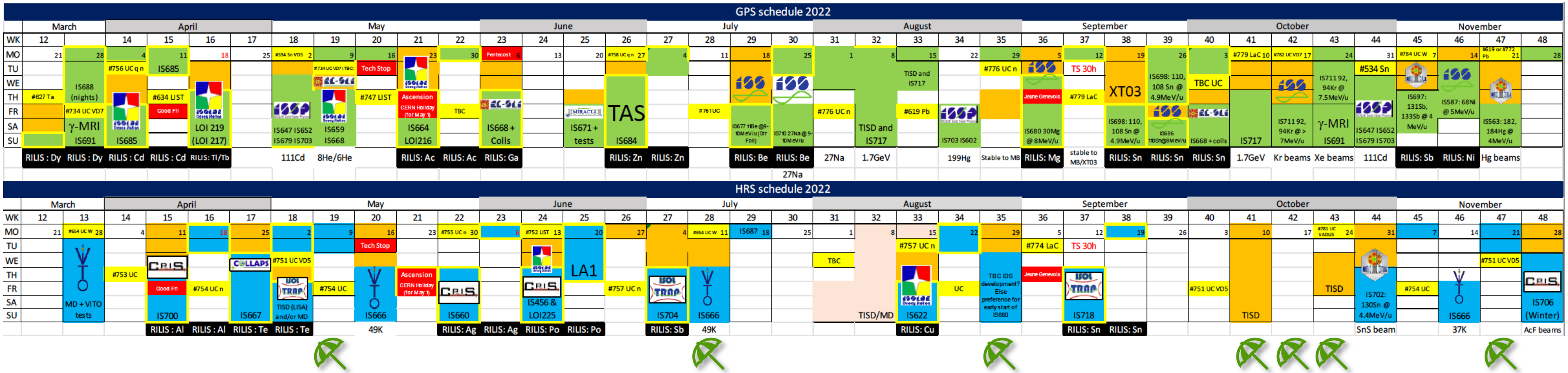

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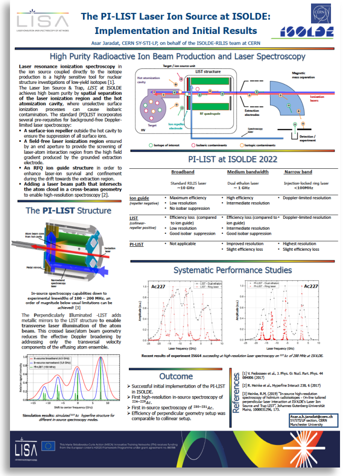

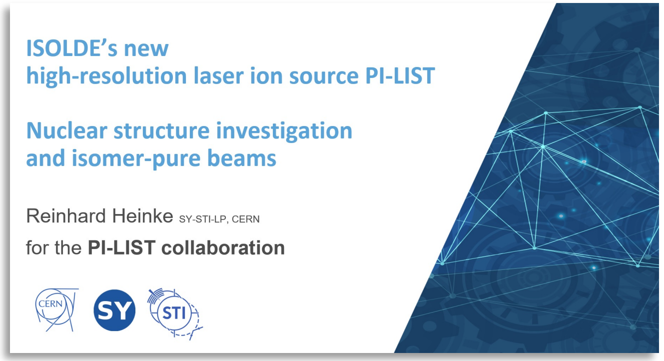

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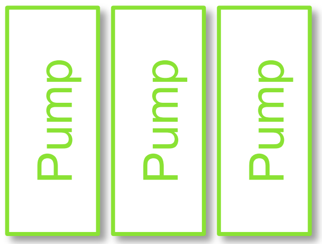

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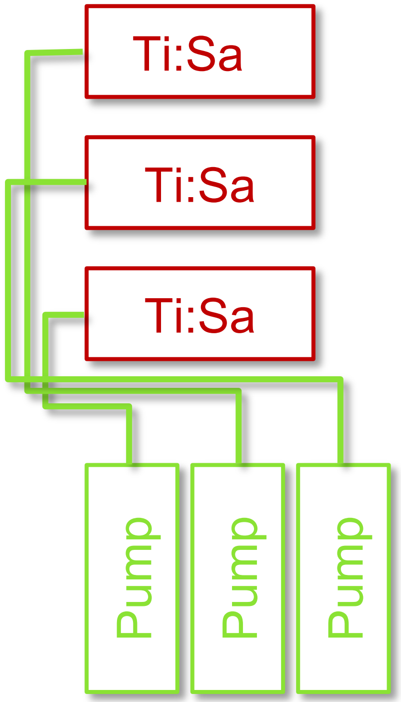

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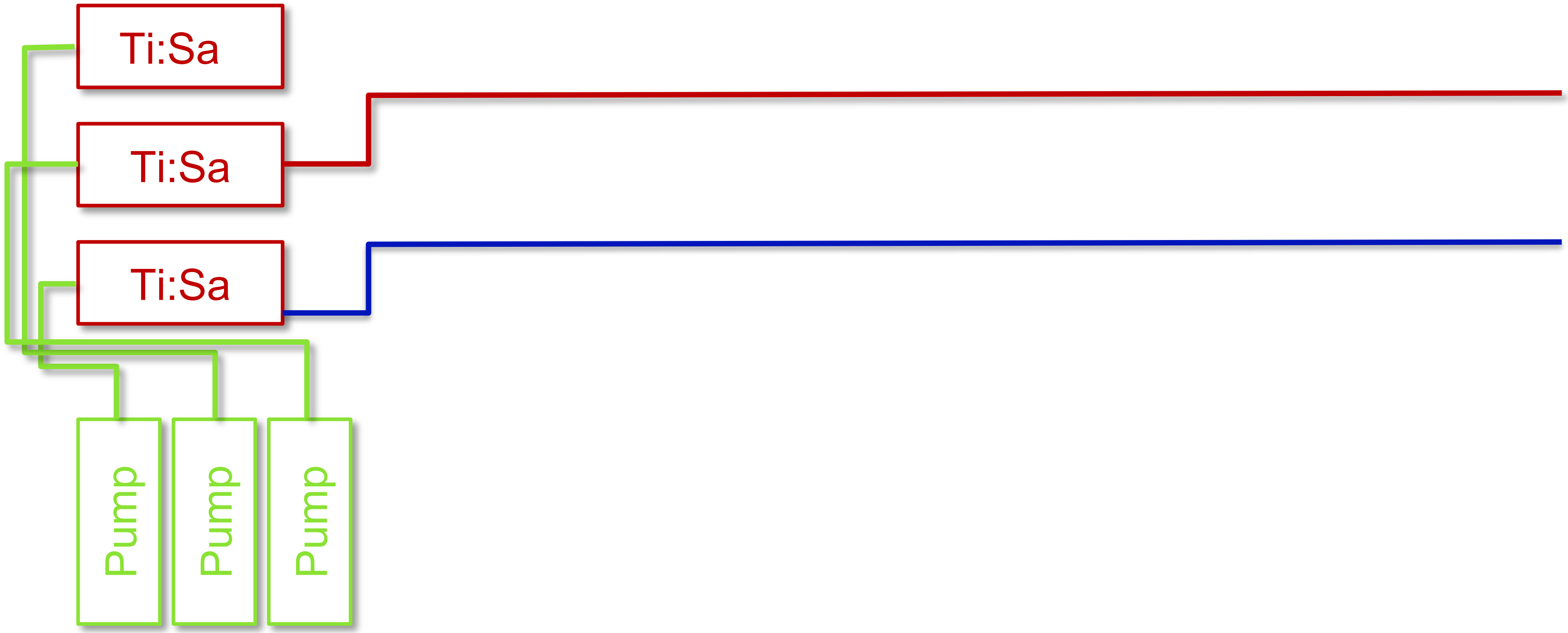

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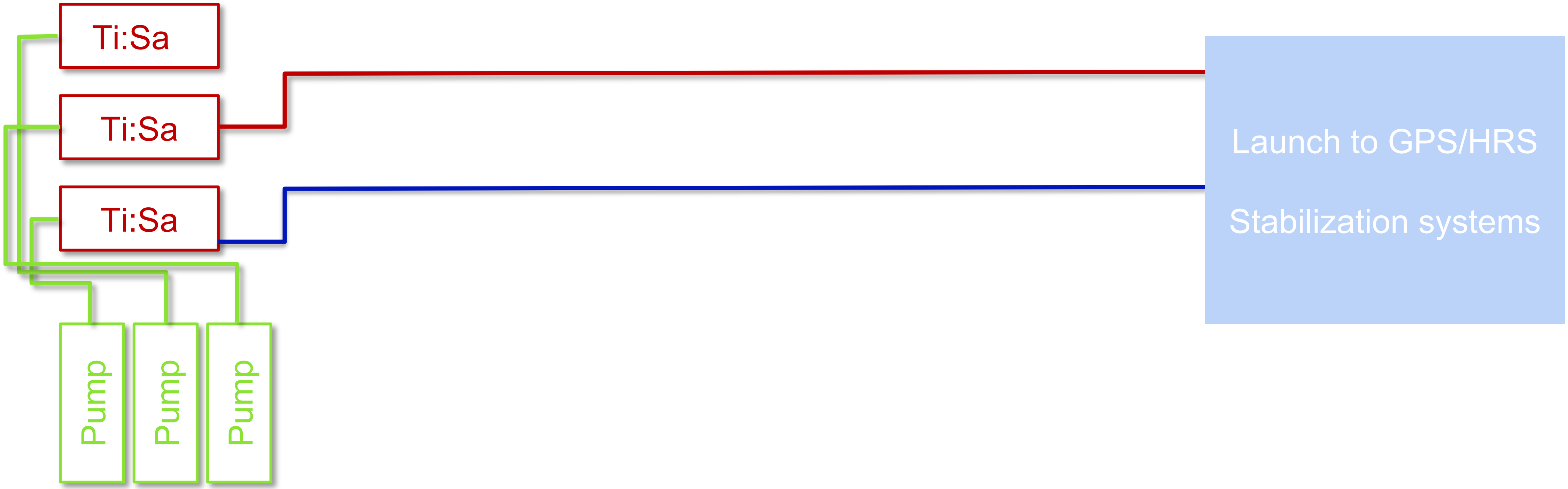

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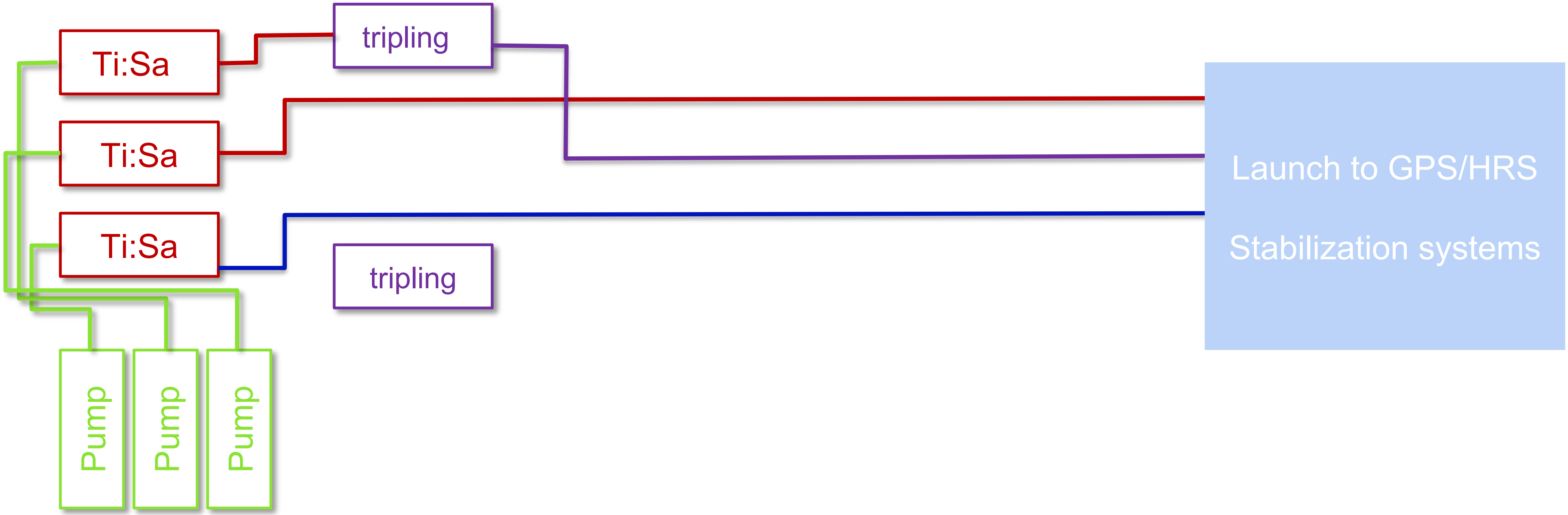

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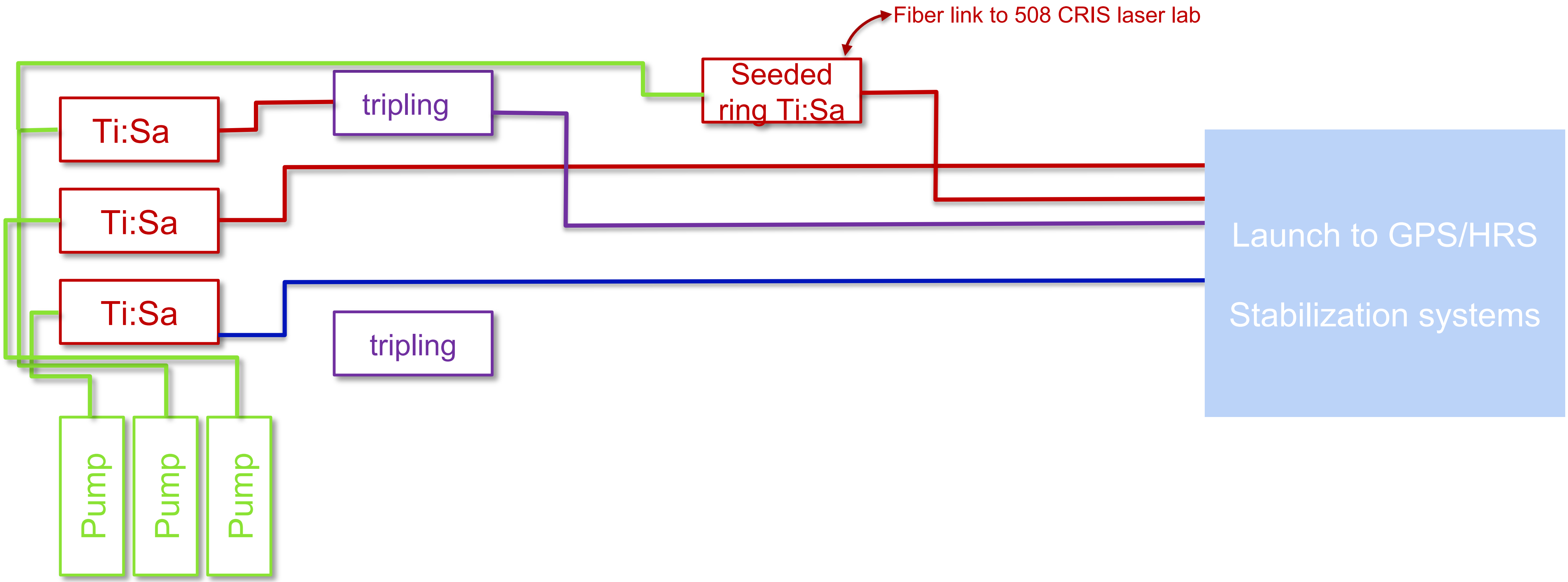

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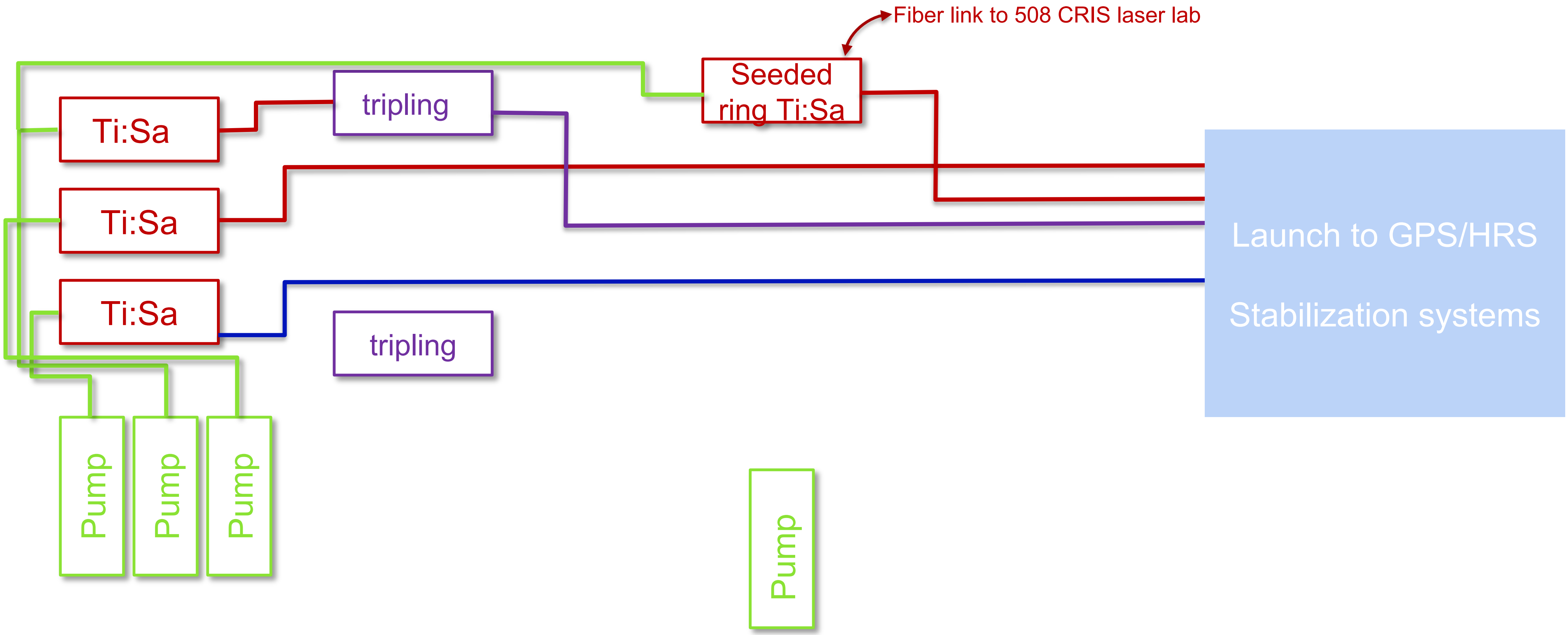

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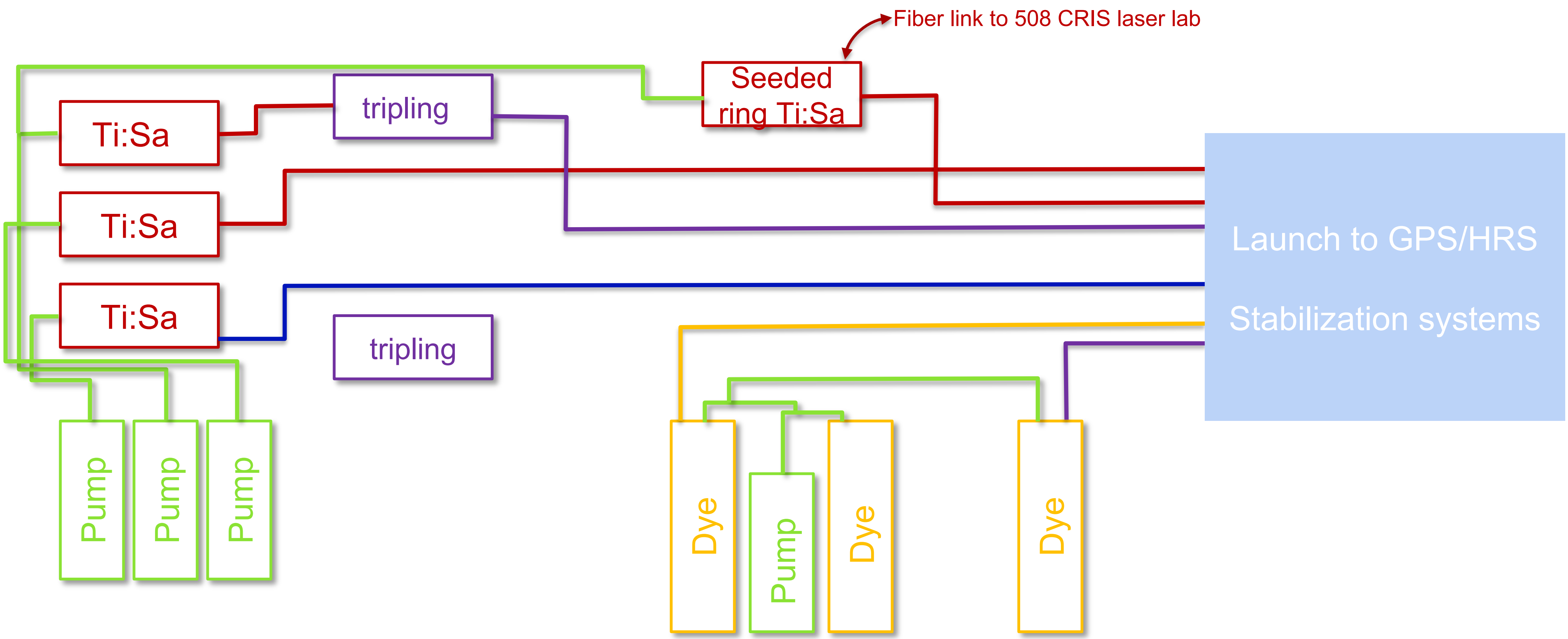

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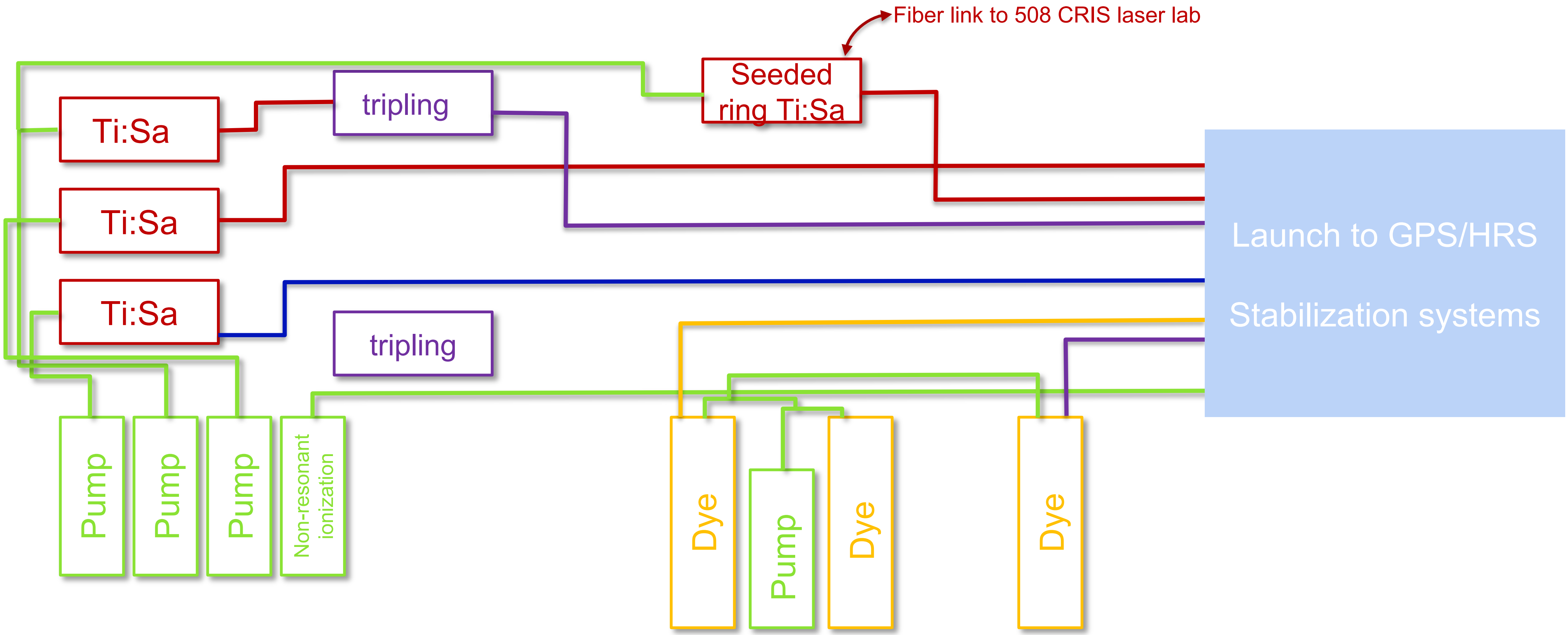

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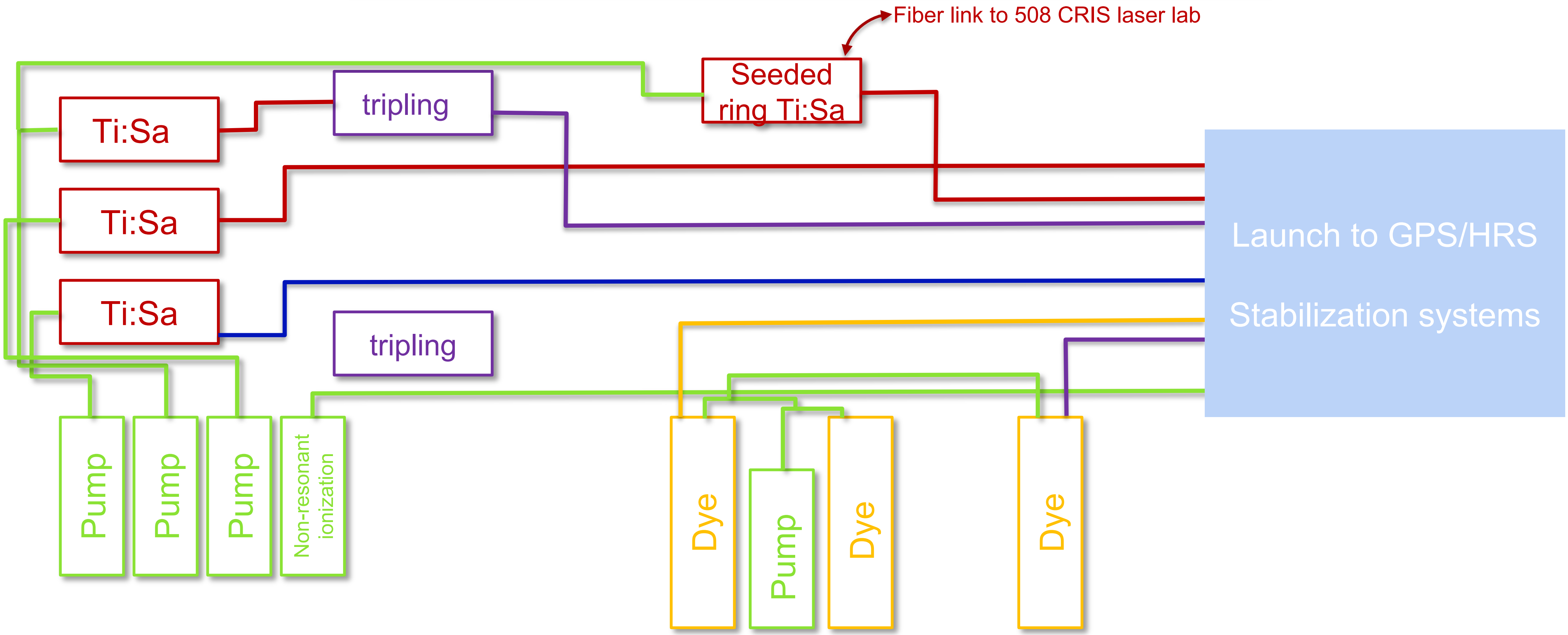
6 tunable lasers, 1 NB seeded laser, 5 Nd:YAG/YVO_4 lasers



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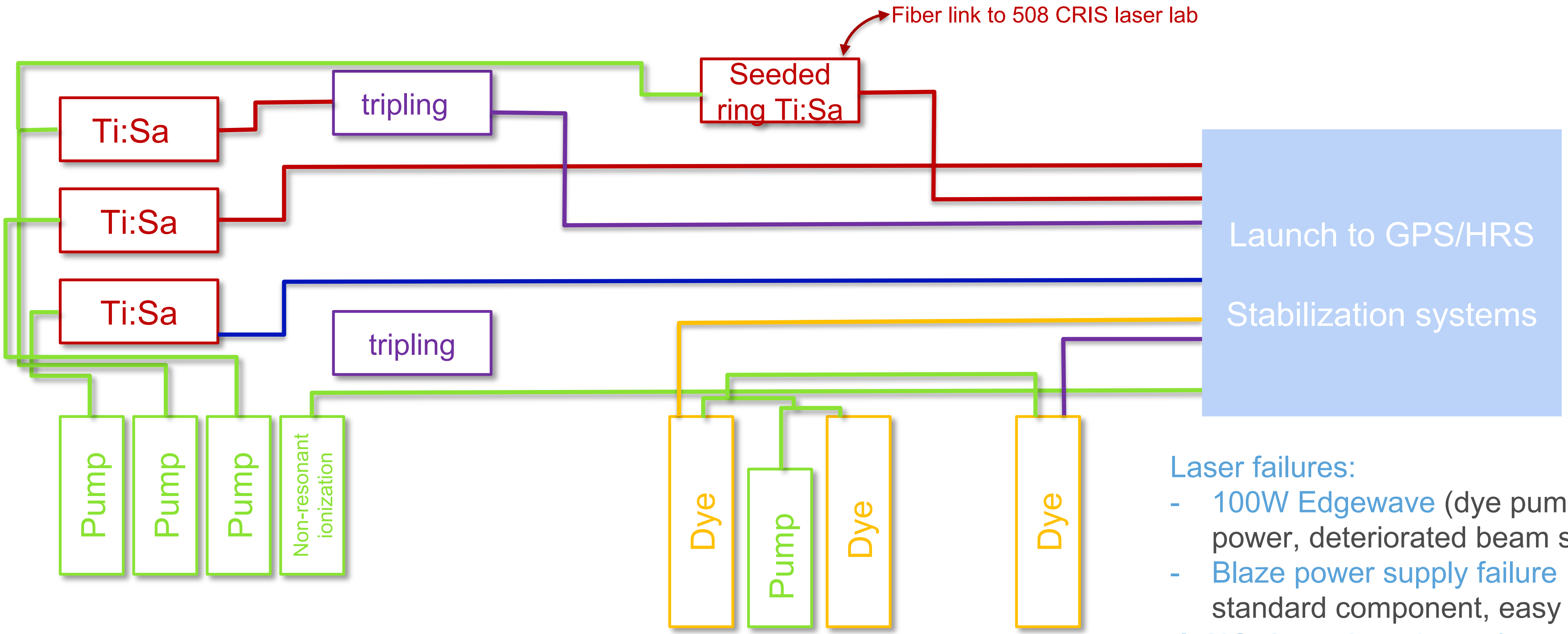

Laser failures:

- 100W Edgewave (dye pump) lost power, deteriorated beam shape
- Blaze power supply failure → standard component, easy to replace

→ **NO downtime** due to laser failures!

The Line-up – Team members

Bruce Marsh
Section leader SY-STI-LP
Since 2022,
Replacing Valentin

Eduardo Granados
Staff
Raman laser dev

Reinhard Heinke
Fellow

Asar Jaradat
LISA-ITN ESR

Ralitsa Mancheva
Doct student

Ralf Rossel
Staff since May 2022

Valentin Fedosseev
Honorary Staff member
since May 2022

Katerina Chrysalidis
Staff since May 2022
RILIS team leader,
Replacing Bruce

Cyril Bernerd
KU Leuven post-doc

Isabel Hendriks
Tech student

Finished this year

Daniel Echarri
Doct student
Left July 2022

Georgios Stoikos
Tech student
Left Oct 2022

Development work

High ion throughput source

- Investigations of laser ion survival at high ion loads
- Symptoms: at (high) total ion current laser ion extraction efficiency reduces!
- Main interest: MEDICIS → short collection times with high ion currents
- Establishment of procedure for determining limits
- Laser enhancement tests with Sm and K contamination
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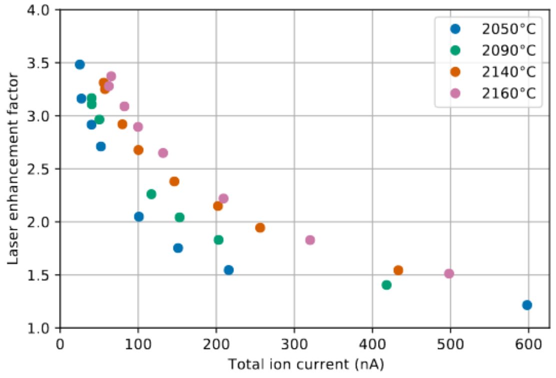
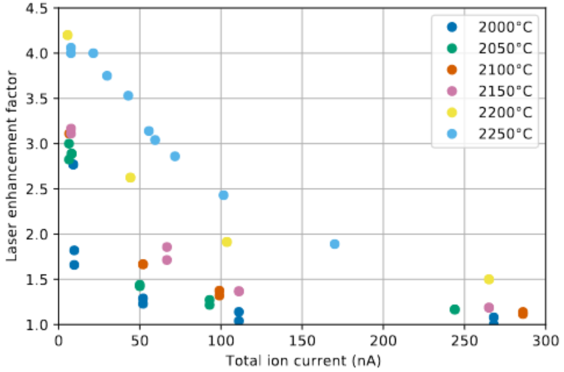
Re ion source, Φ = 5.1 eV



W ion source, Φ = 4.53 eV



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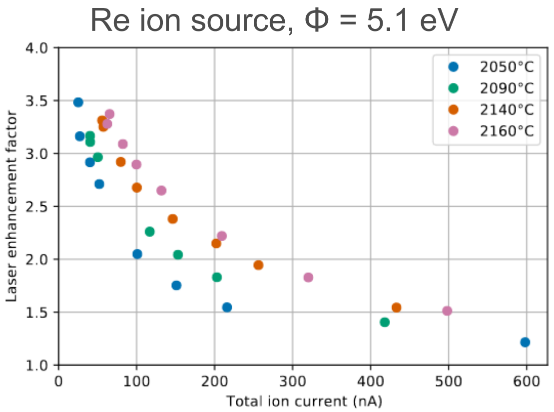

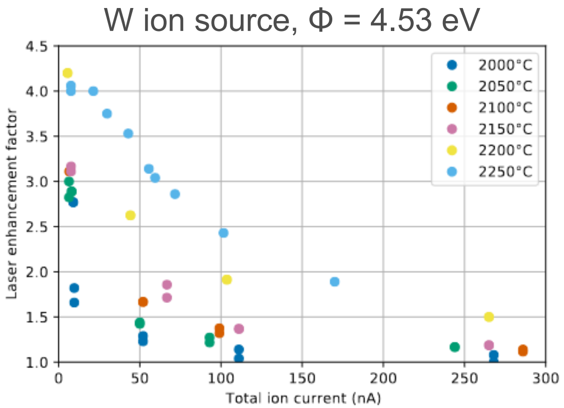

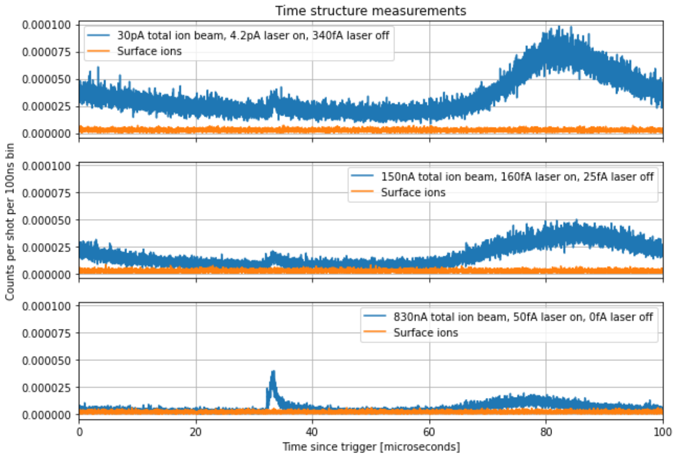

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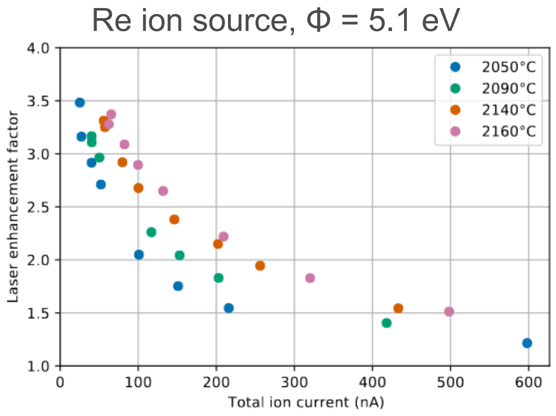

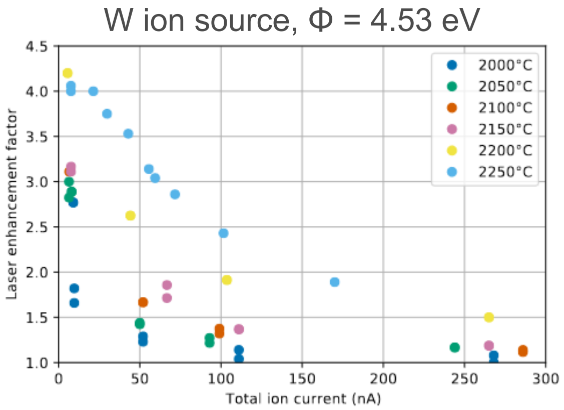

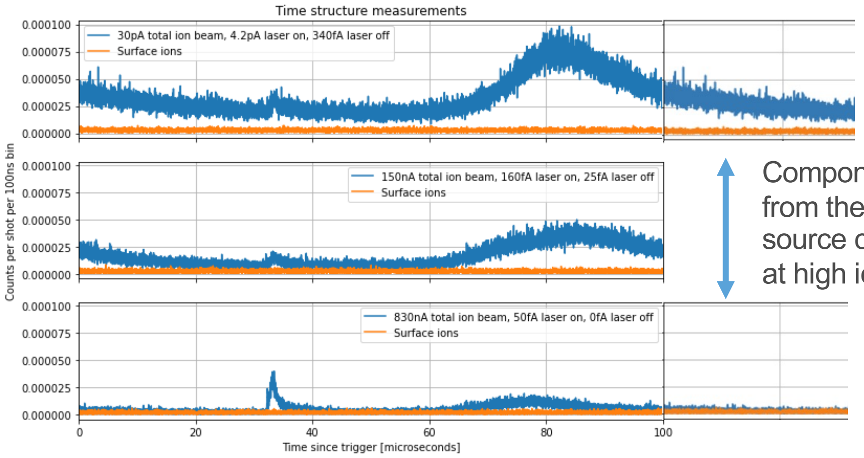

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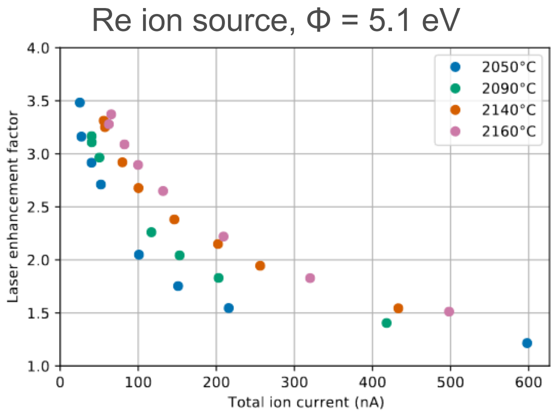

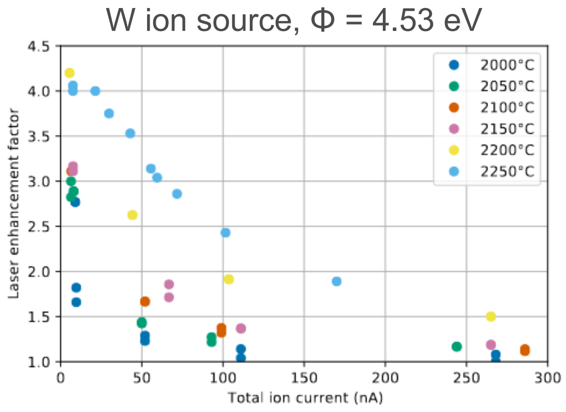

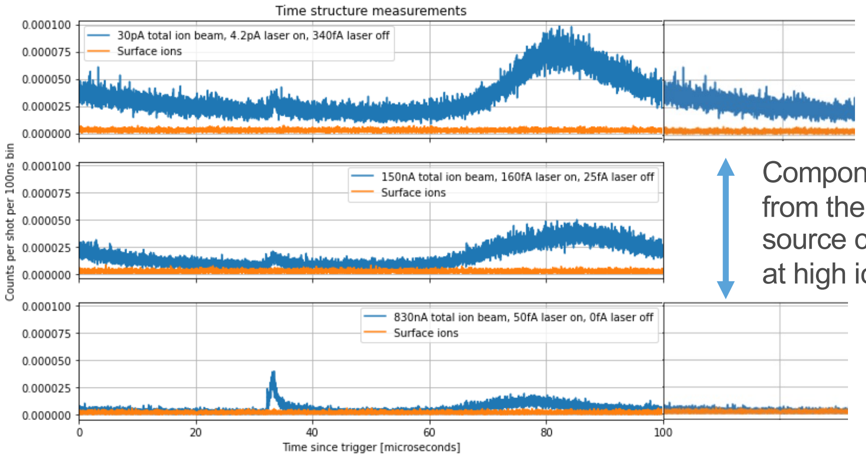

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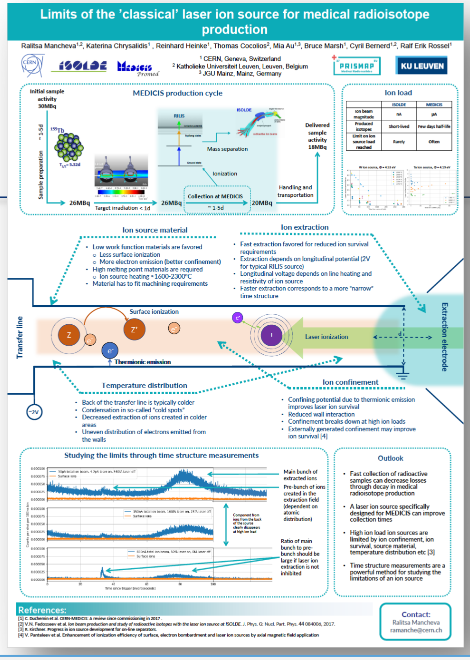
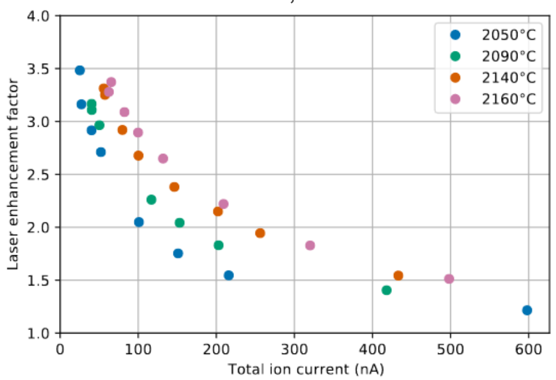
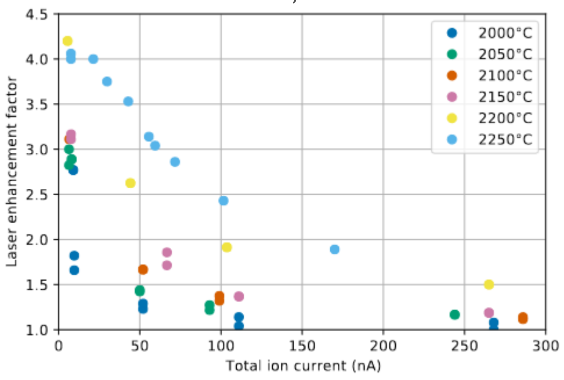
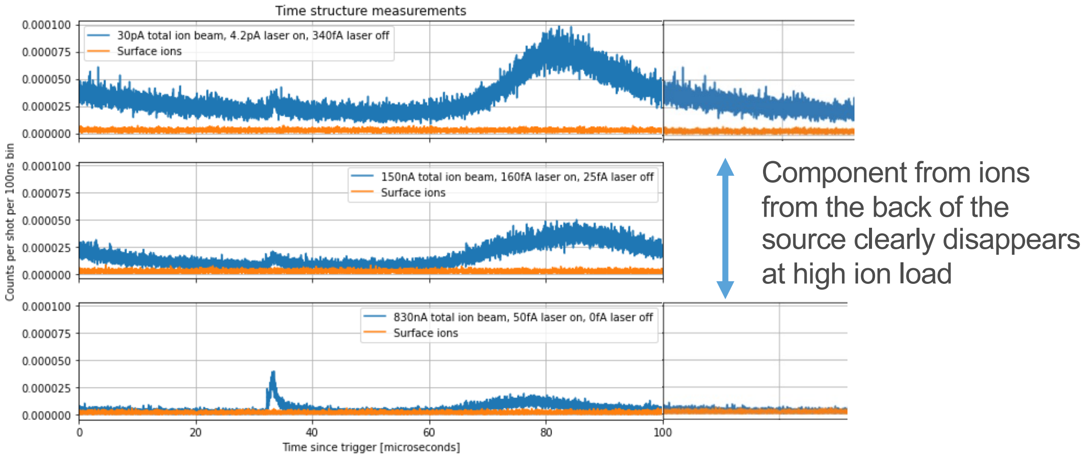


See poster by R. Mancheva







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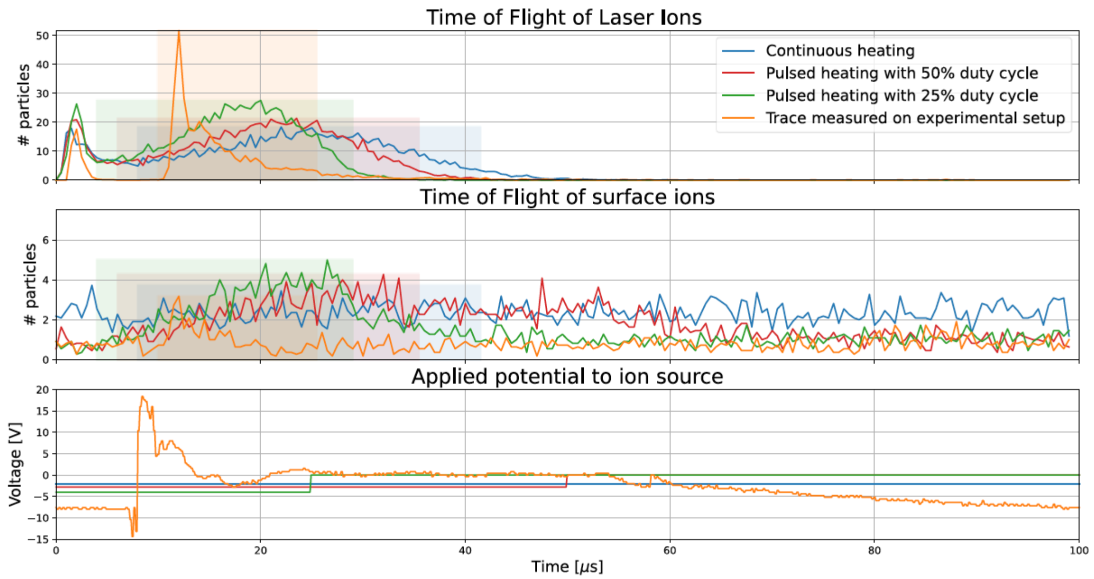

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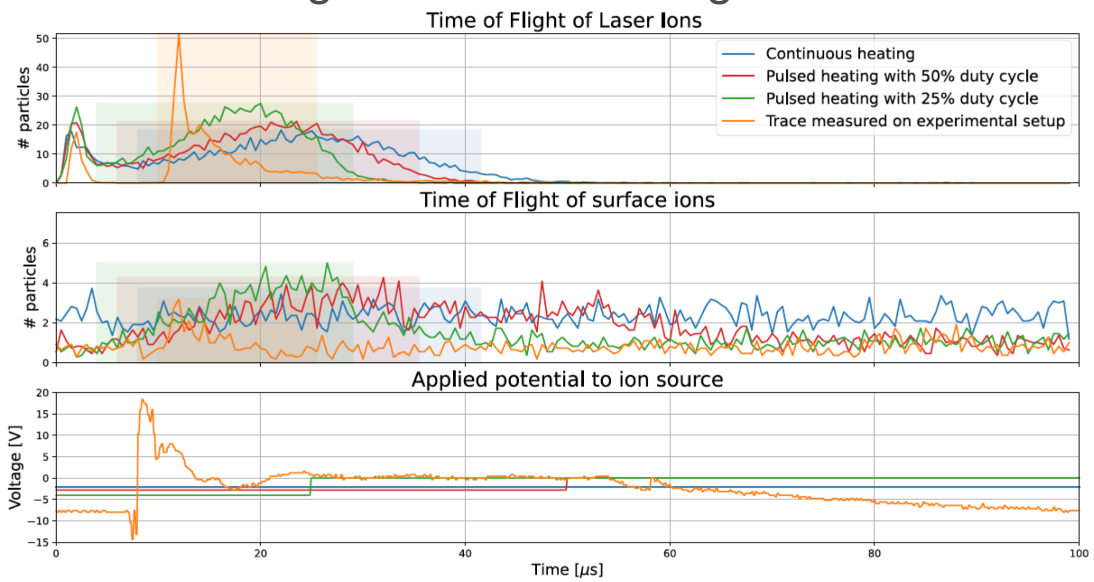

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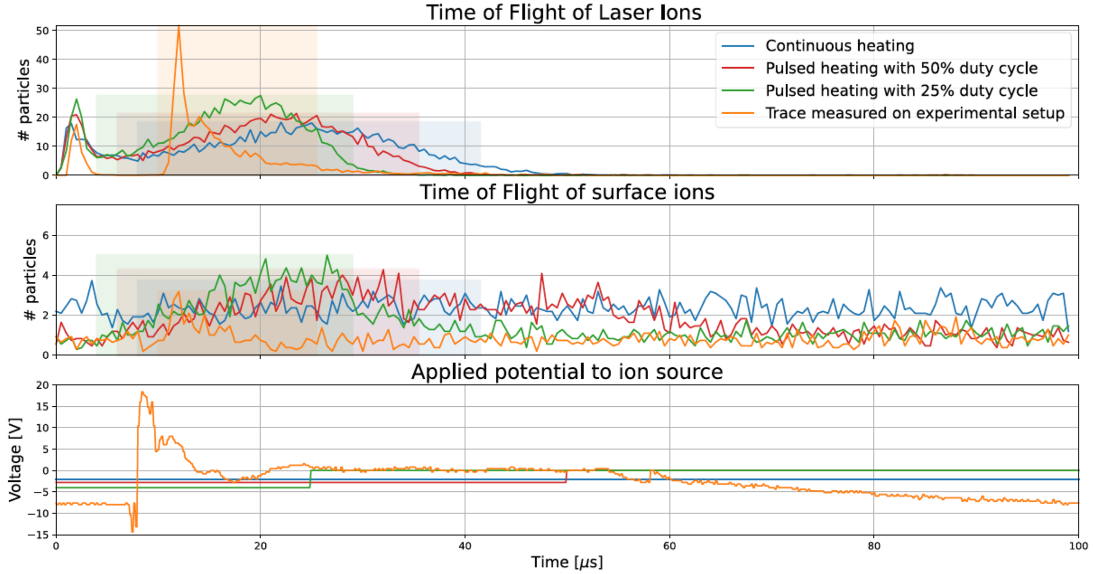

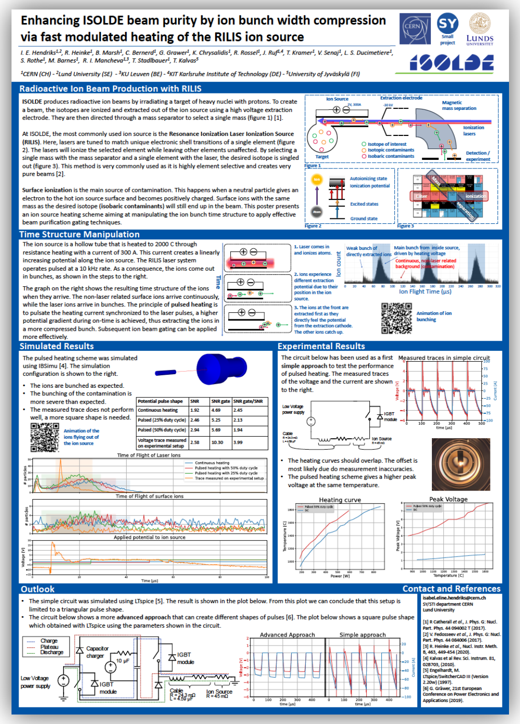

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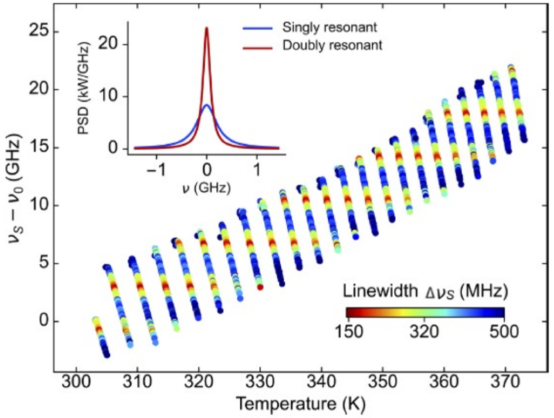

Eduardo Granados and Georgios Stoikos, Opt. Lett. 47, 3976-3979 (2022); https://doi.org/10.1364/OL.464816

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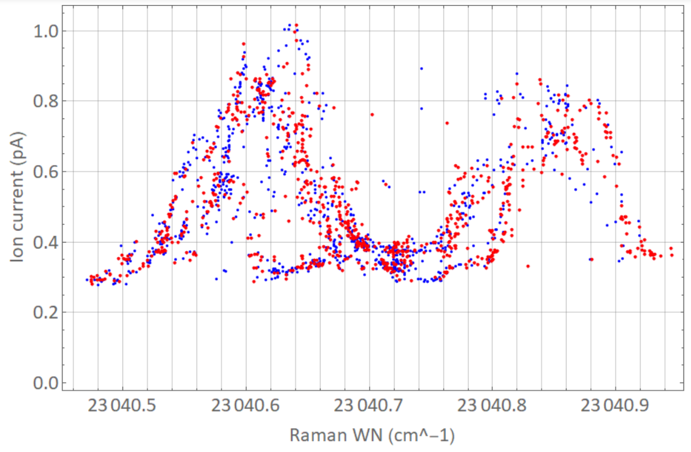

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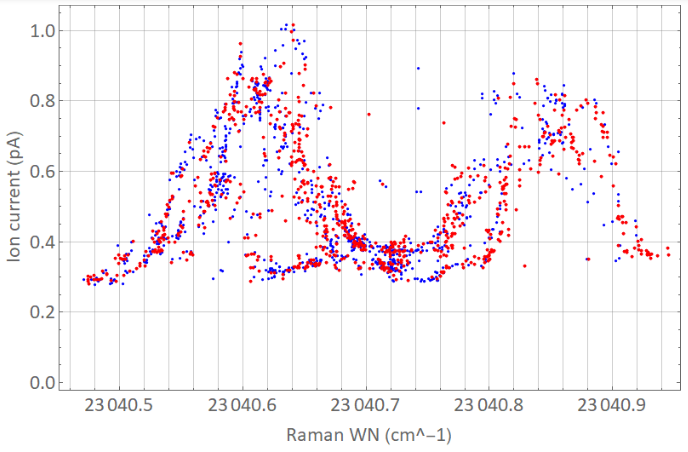

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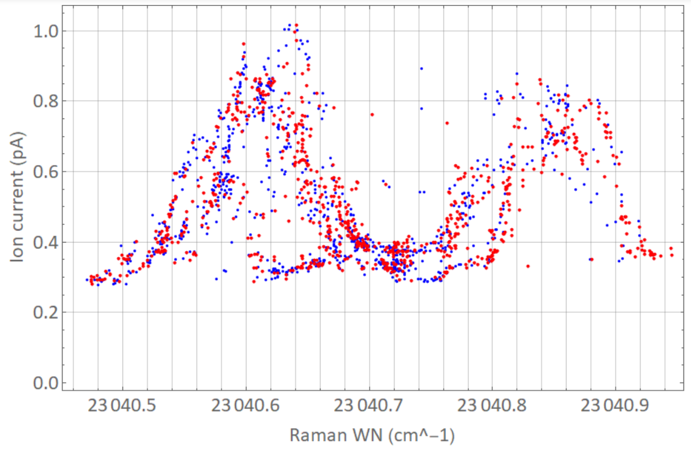

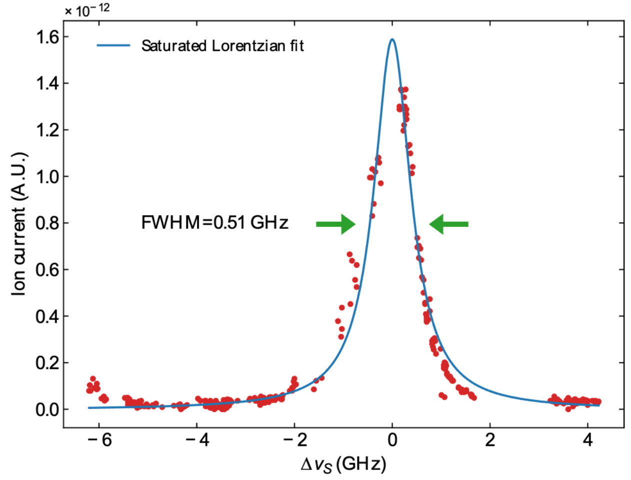

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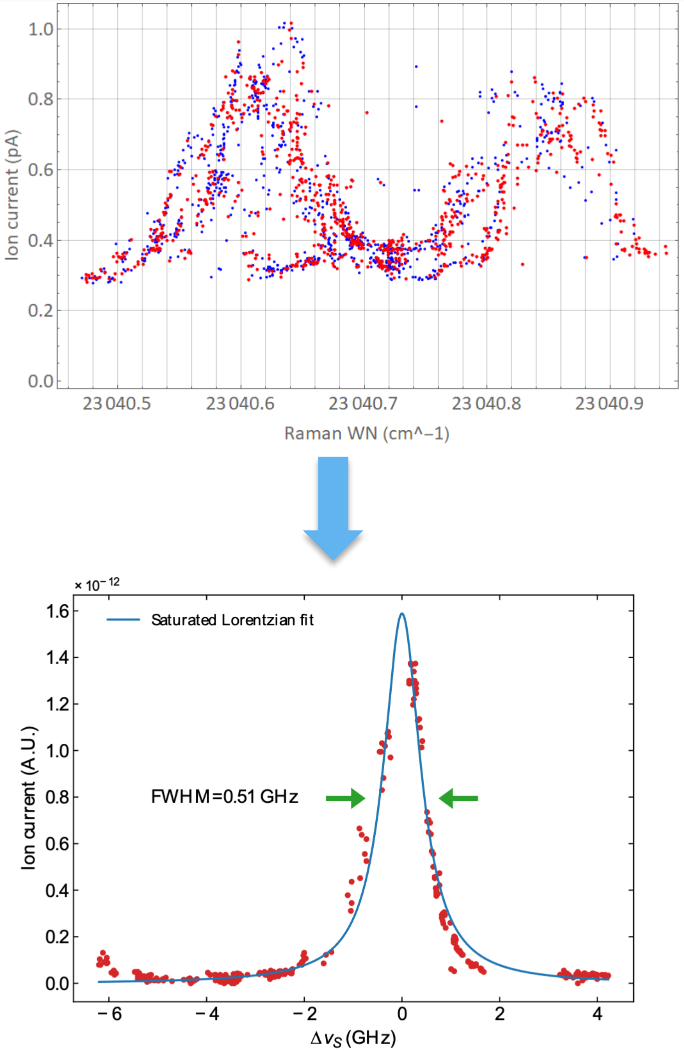

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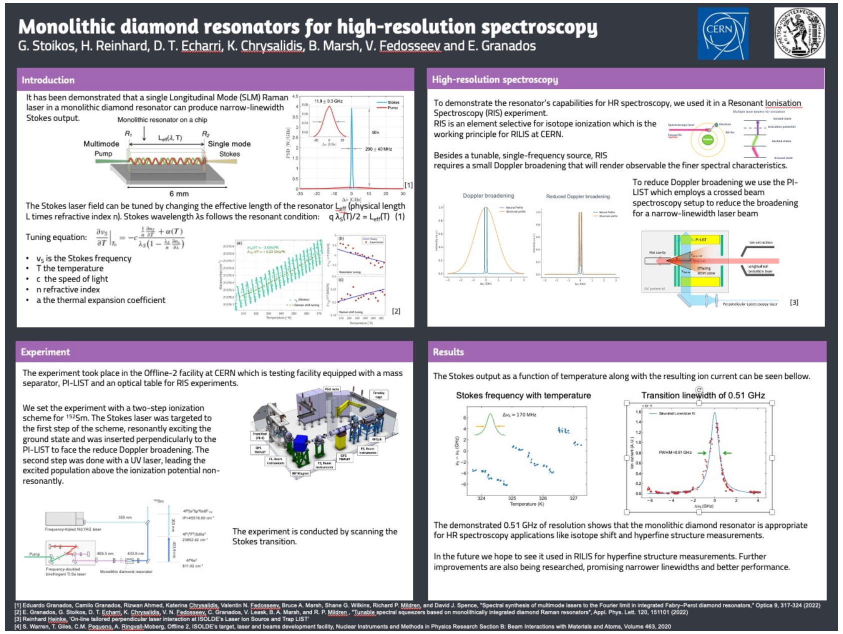

See poster by G. Stoikos/ E. Granados

Light generation for Ag at CRIS

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  - Construction of frequency mixing unit at RILIS

Photos/data by M. Urquiza

LISA – Laser Ionization and Spectroscopy of Actinides.
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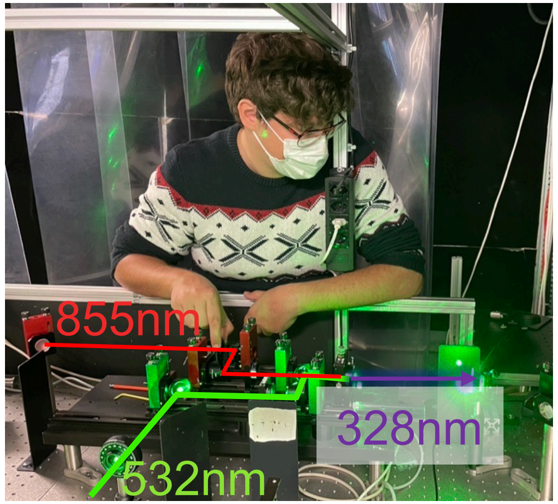

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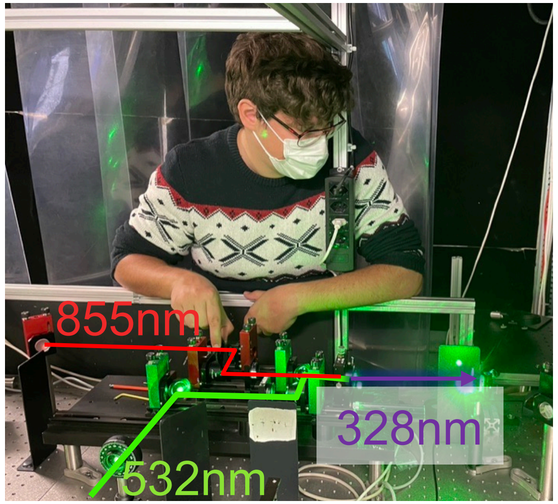

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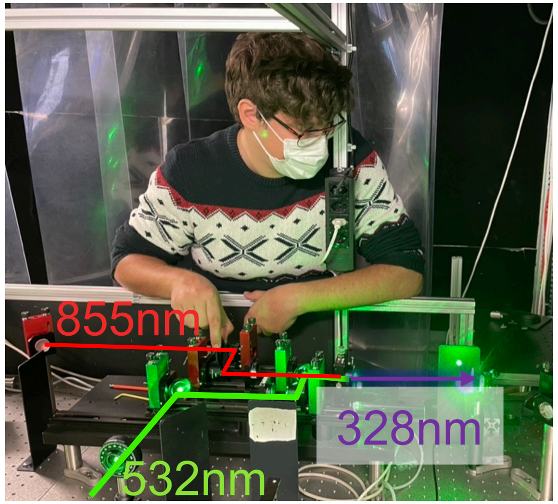

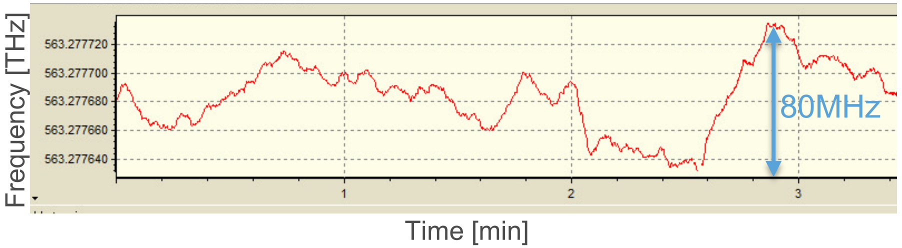

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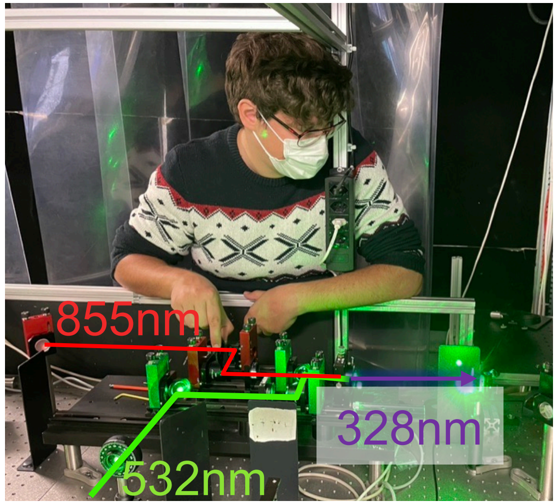

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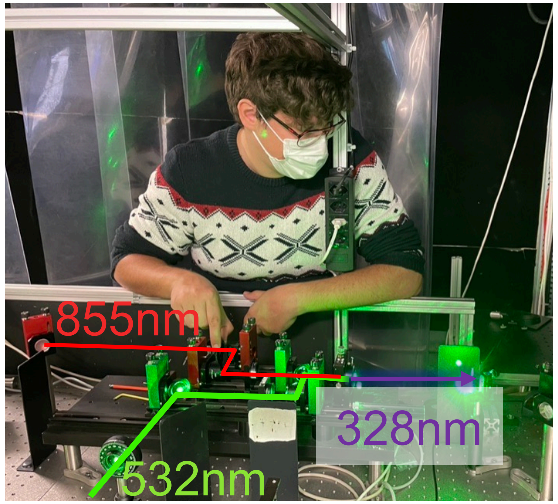

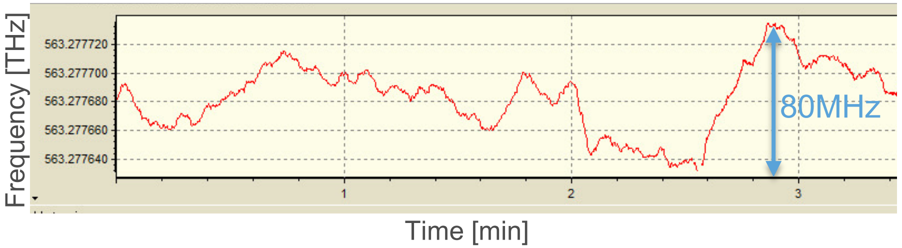

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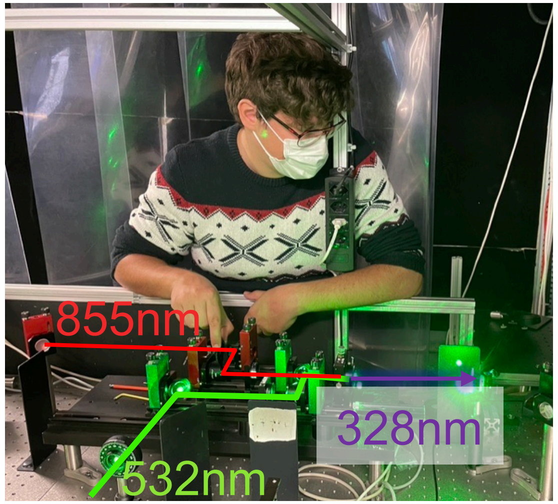

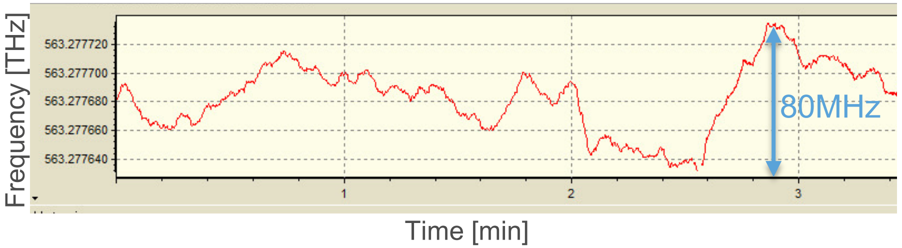

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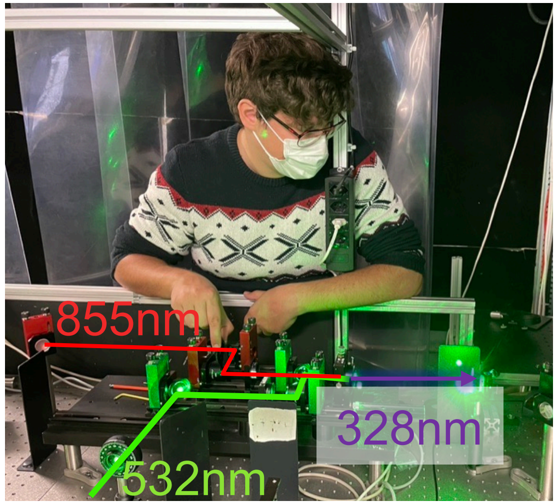

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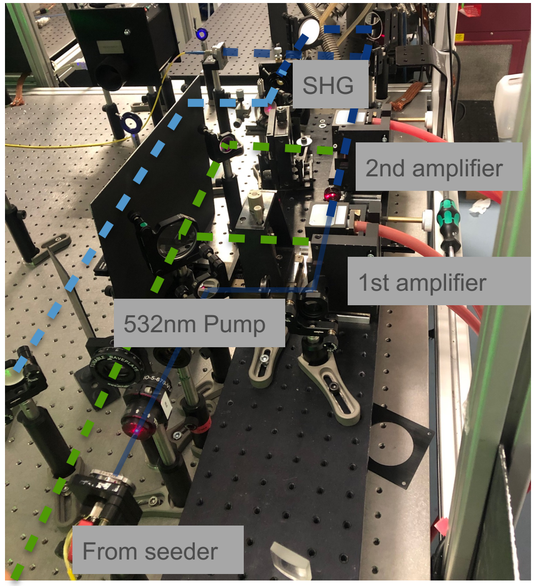

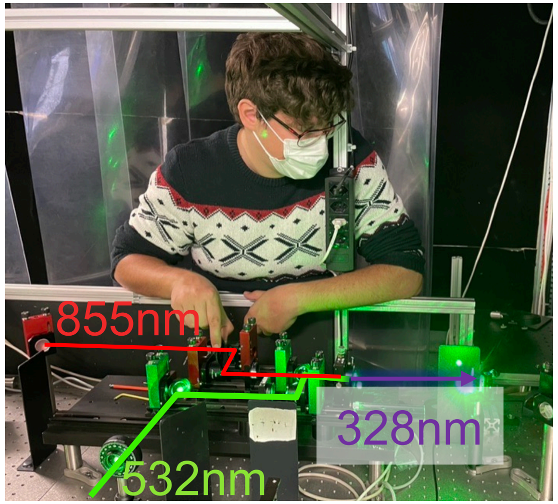

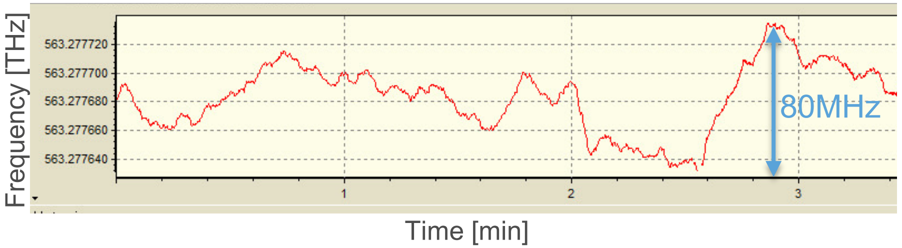

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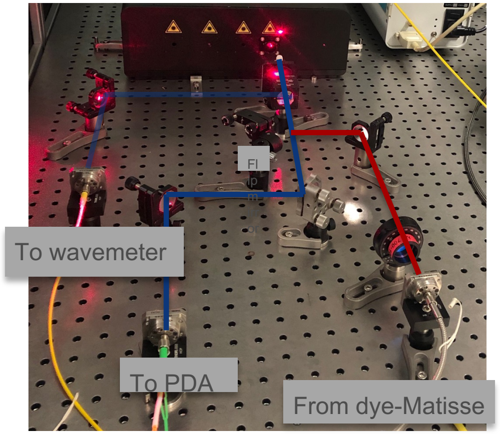

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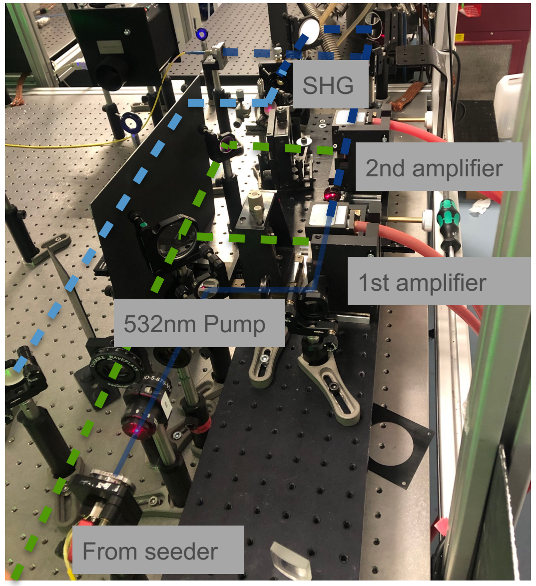

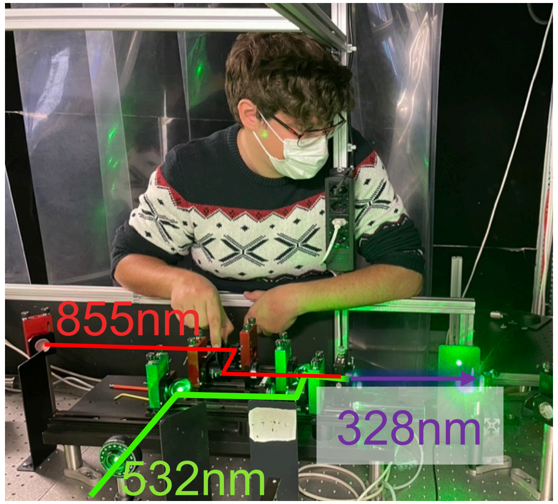

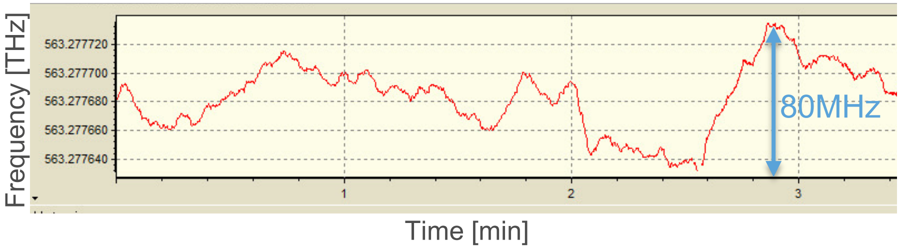

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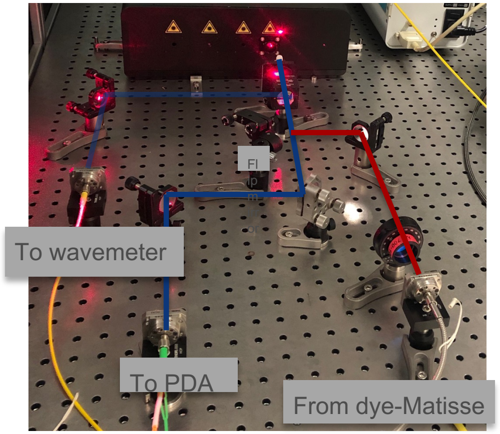

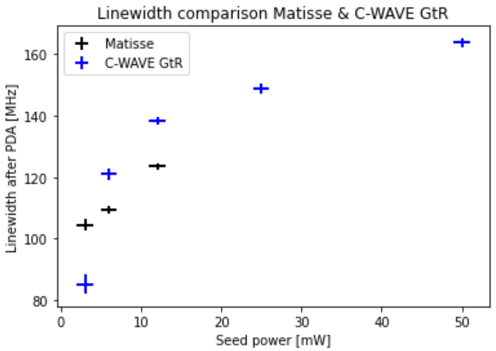

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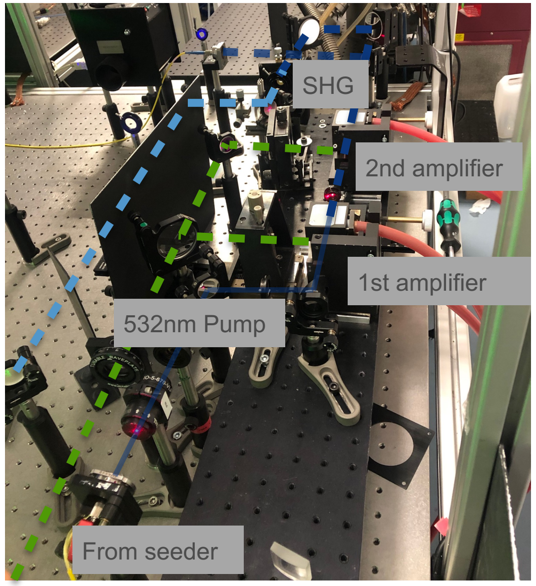

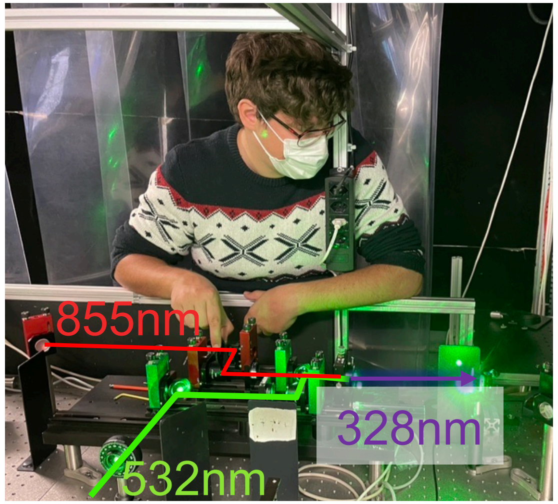

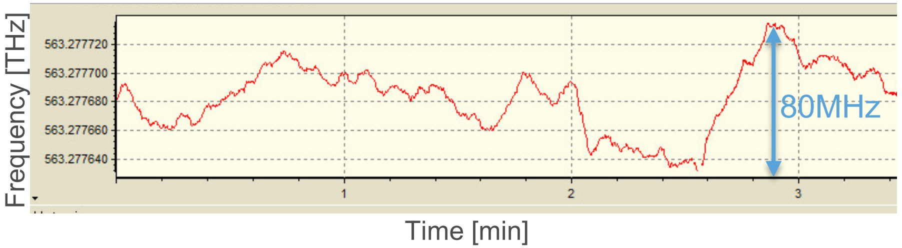

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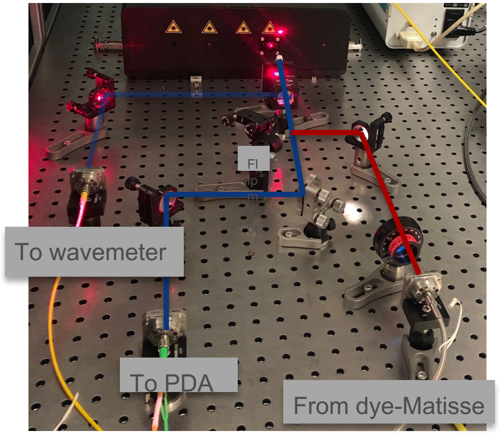

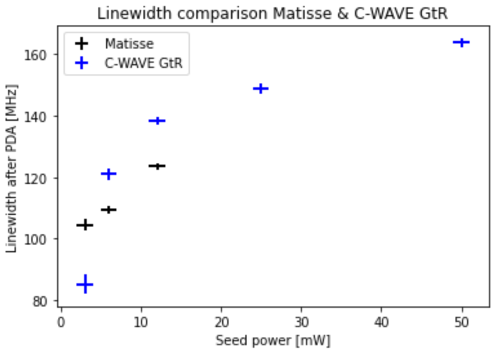

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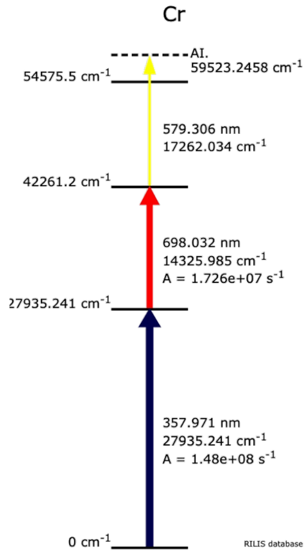

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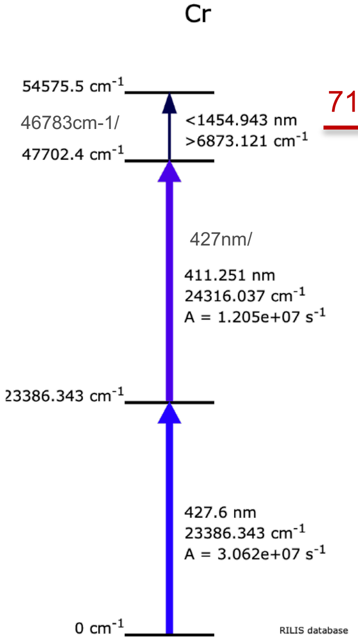
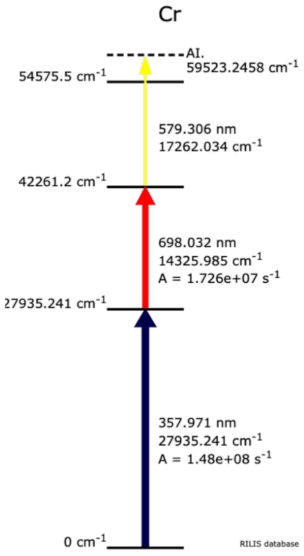


710-900nm

Scans for AI with grating TiSa



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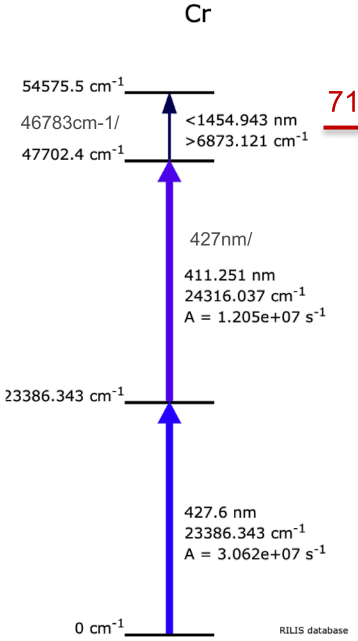

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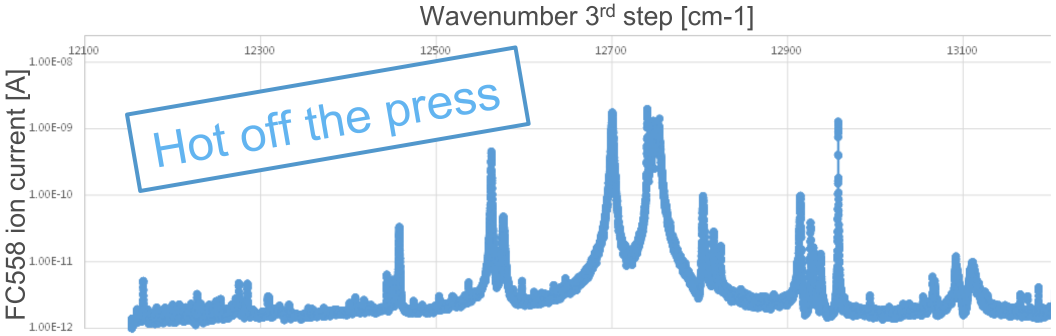

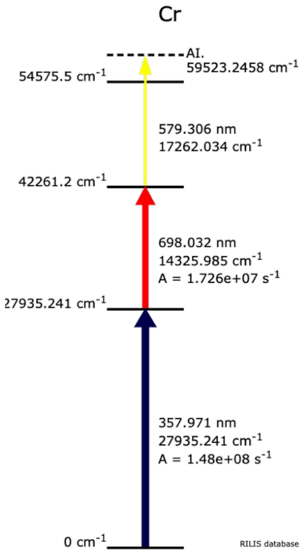

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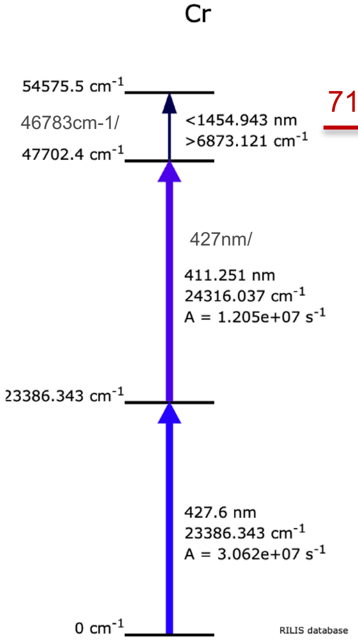
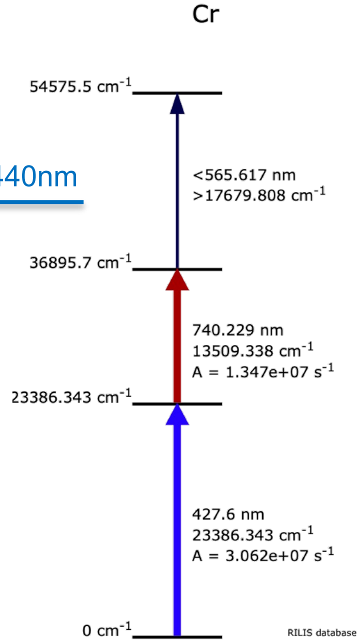
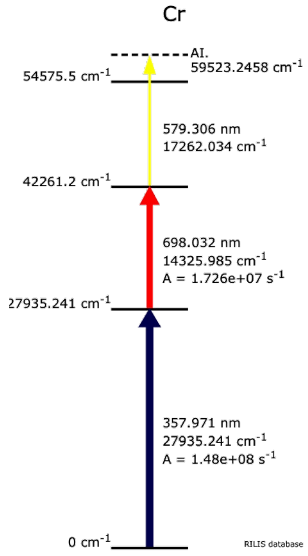


710-900nm → Scans for AI with grating TiSa

Use oven for phase-matching of intra cavity doubling the grating TiSa for increased scan-range ← 360-440nm





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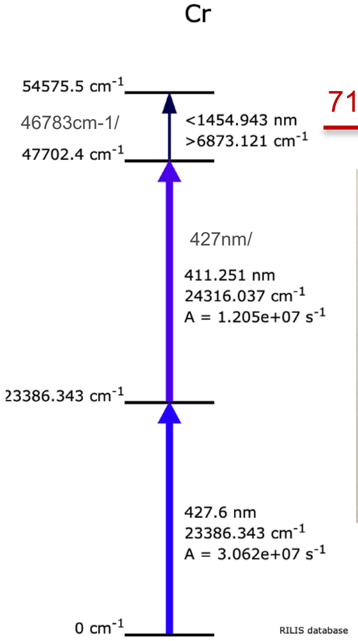

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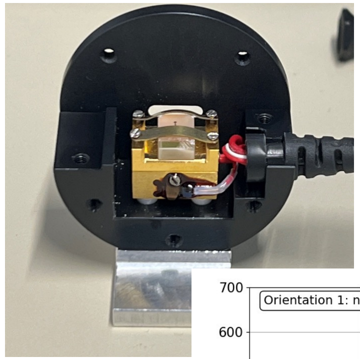

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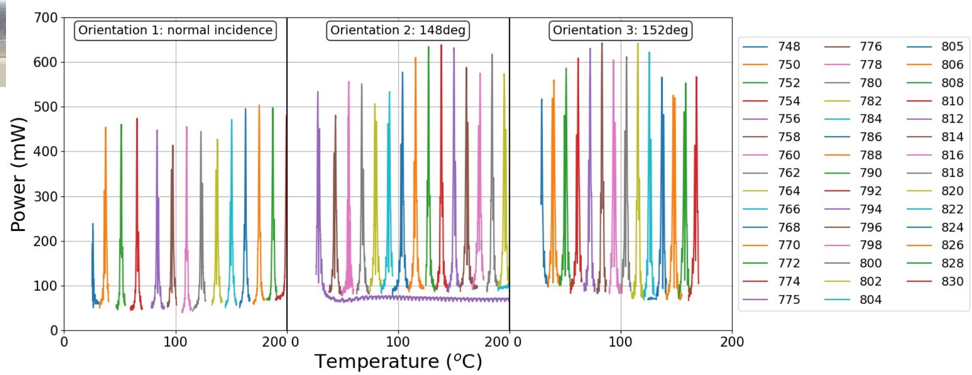

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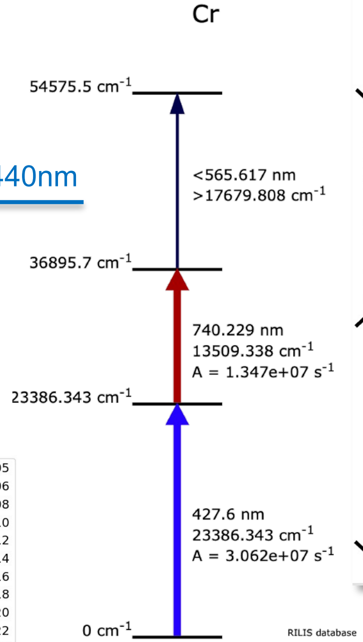

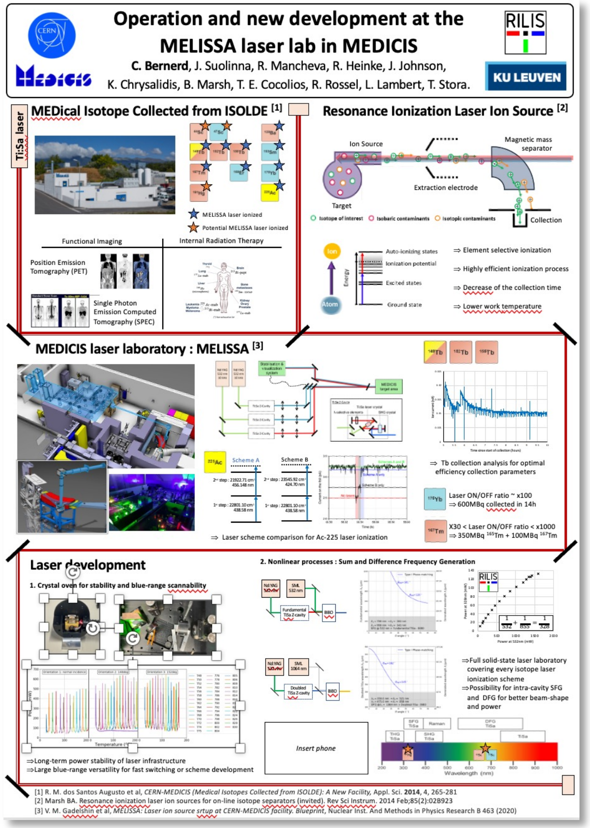

See poster by C. Bernerd

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→ https://www.kuleuven.be/personeel/jobsite/jobs/60171404

- PhD Student projects on
    - Laser development for resonance laser ionization
    - Laser Ion source developments
    - High resolution laser spectroscopy of Lanthanides

Thank you for
your attention!