

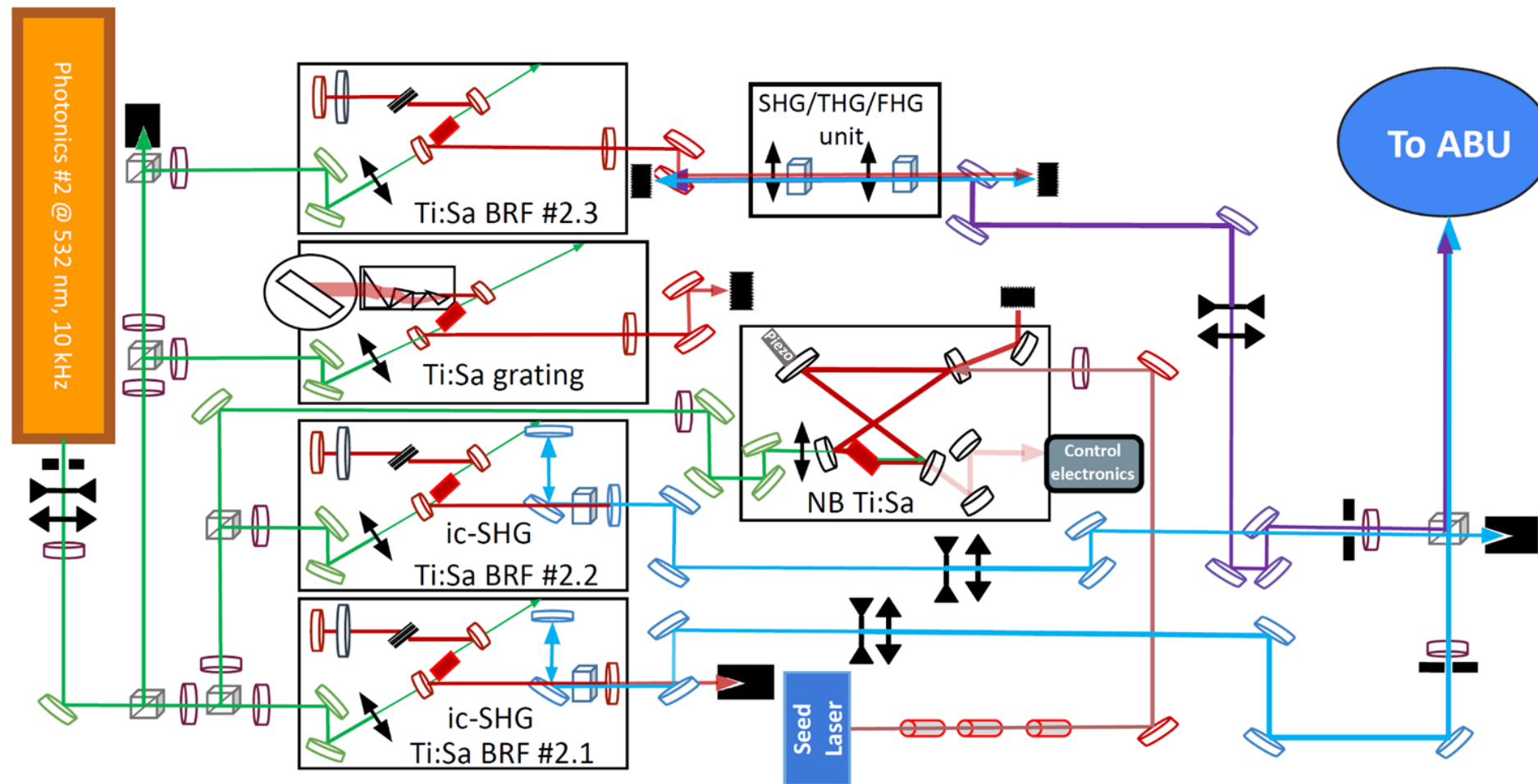
Status of GISELE

Sarina Geldhof

Content

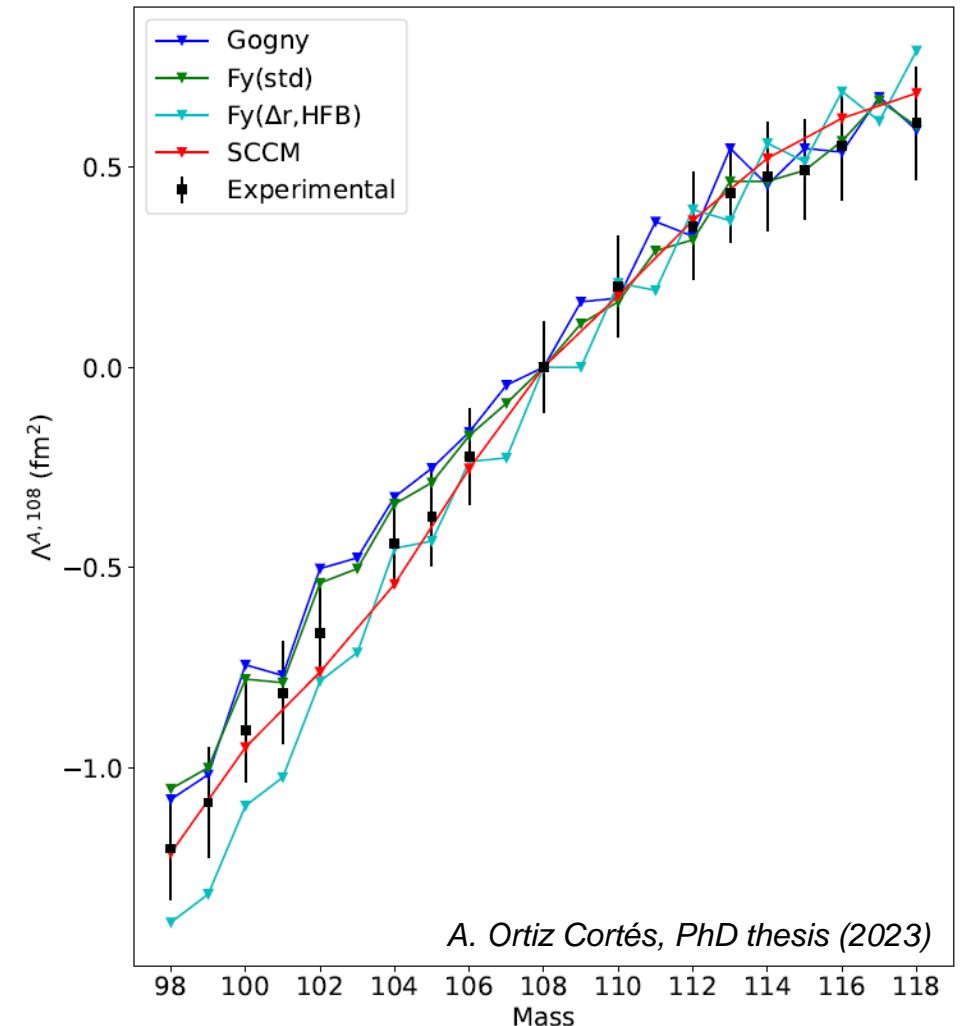
- GISELE Ti:sapphire laser laboratory
- Pd measurements
- Upgrades
 - cw Ti:sapphire laser
 - New injection-locked laser
- Outlook

GISELE Ti:sapphire laser laboratory



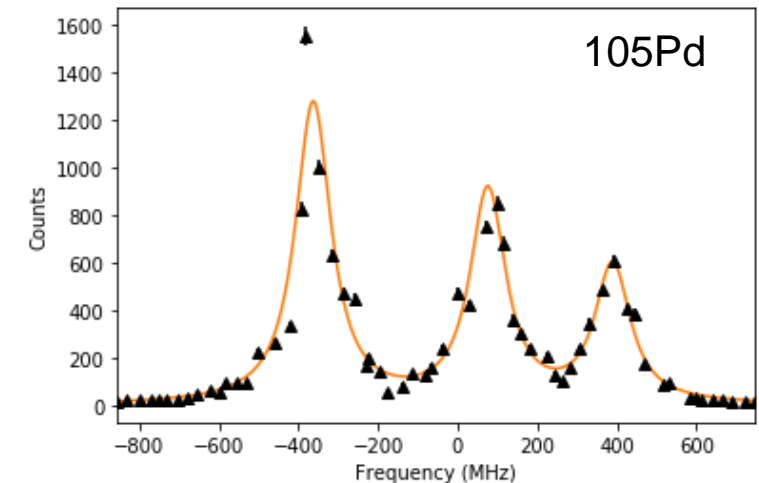
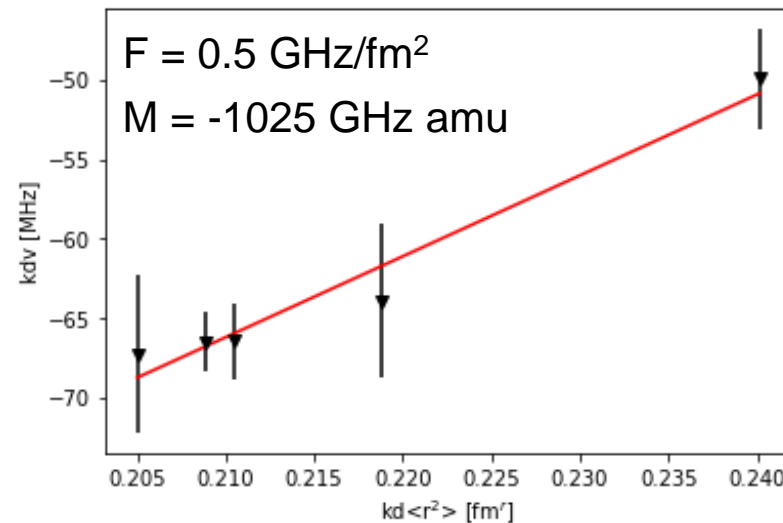
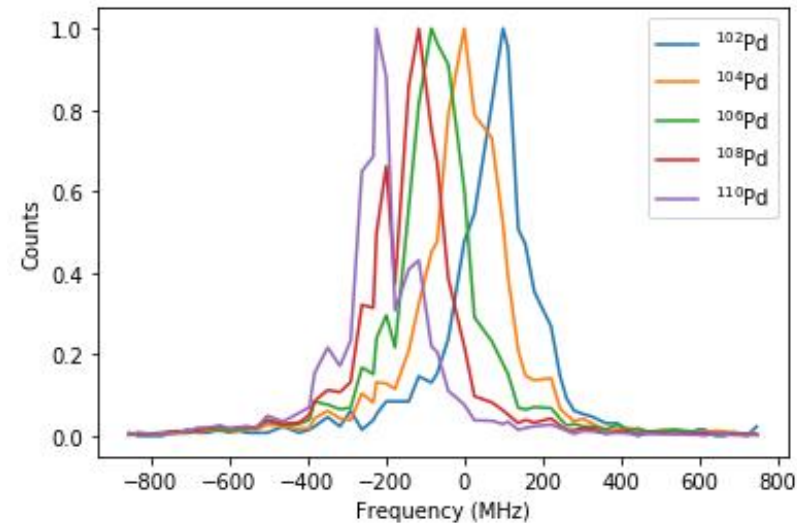
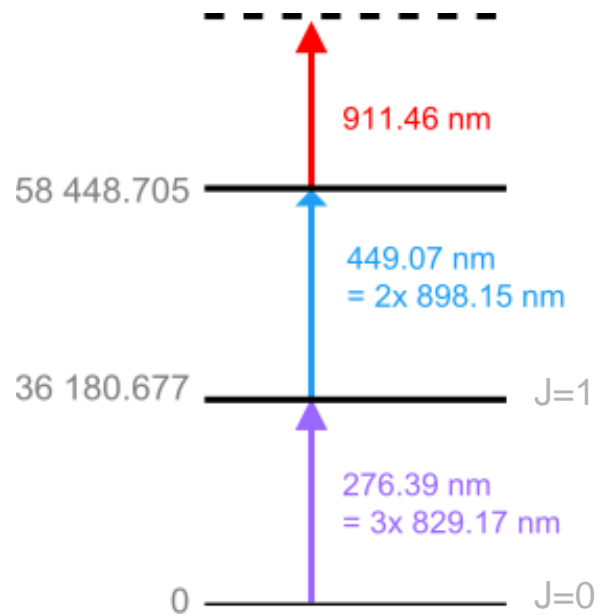
Pd measurements

- Motivation
 - Limits reached (neutron-rich and -deficient) for collinear laser spectroscopy at IGISOL
 - Going further (e.g. reaching $N=Z$) \rightarrow more sensitive technique \rightarrow resonant ionisation laser spectroscopy (hot cavity at IGISOL, gas jet at S3-LEB,...)
 - No known laser ionisation scheme with sensitivity to nuclear observables



Pd measurements

- Test of known scheme



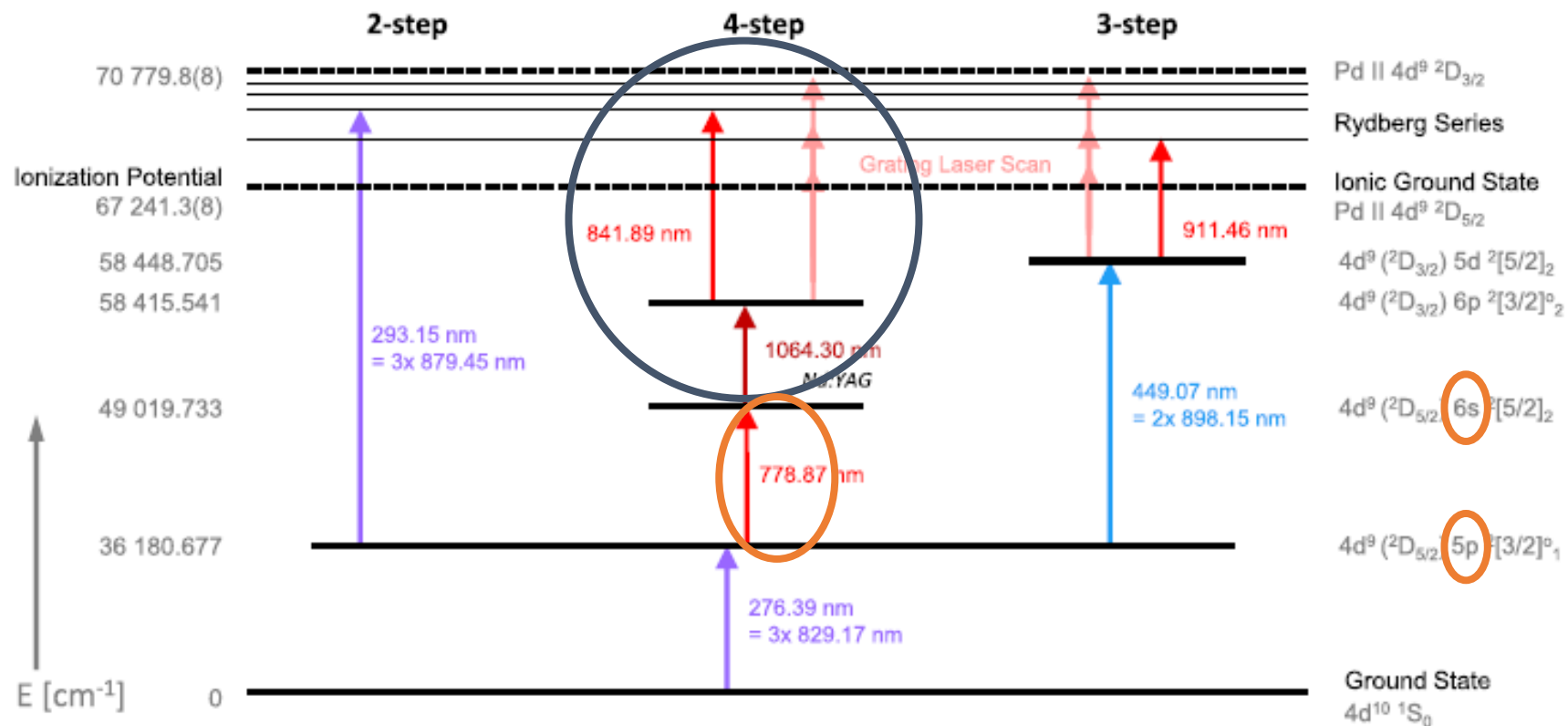
A = -127(3) MHz, B = 4(4) MHz

Level	A (MHz)		B (MHz)	
	This work	Literature	This work	Literature
$4d^9 5p, ^2D_{5/2} J = 1$	-126.2(6)	-126.9(6)[12]	6(2)	2.0(9) [12]

S. Geldhof et al., *Hyp. Int.* 241 (2020)

Pd measurements

- Development of new scheme based on previous work at Mainz



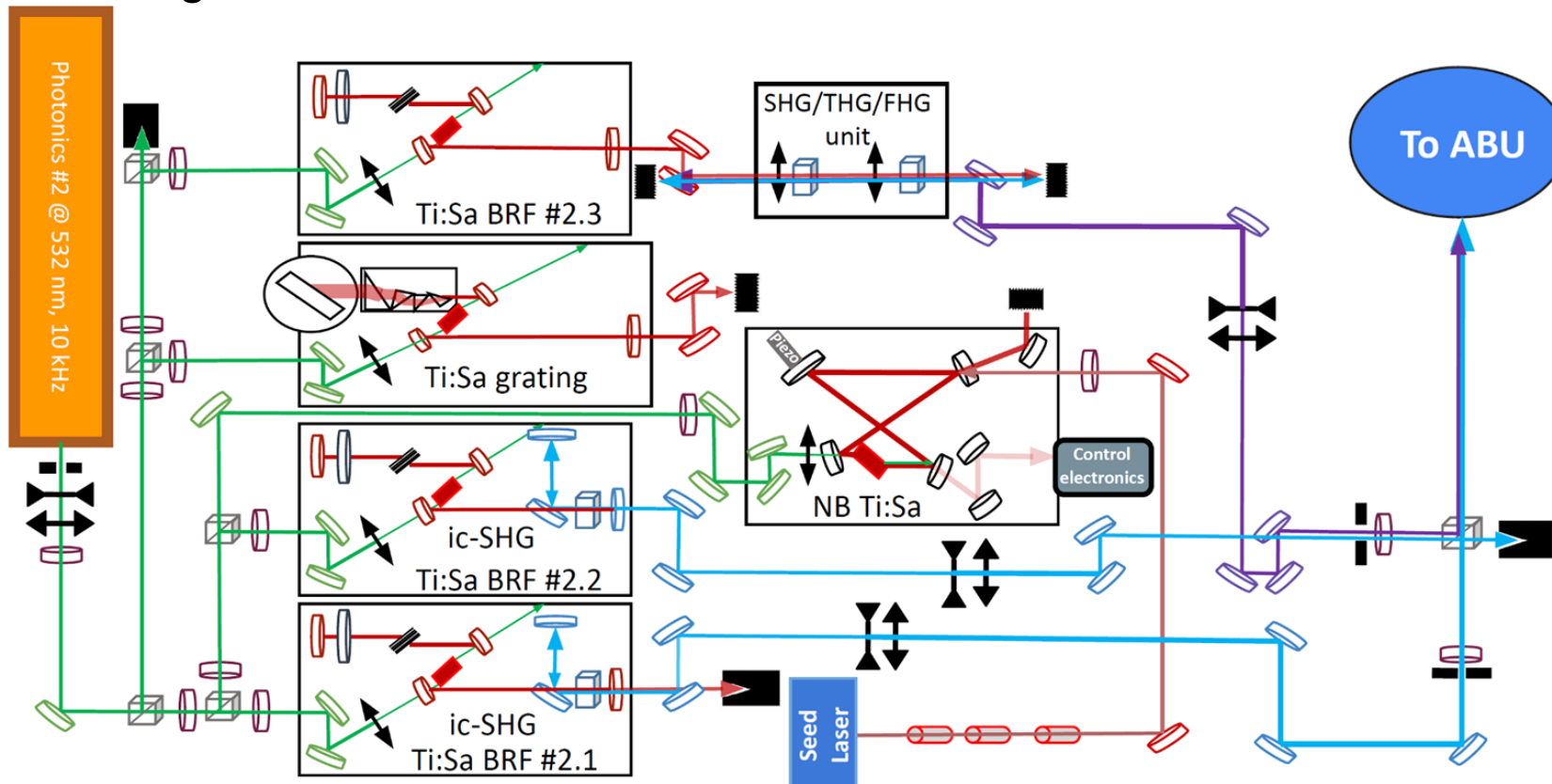
Try to combine into 1 step
due to lack of 1064 nm
(and to simplify)

Spectroscopy step

T. Kron et al., J. Phys. B: At. Mol. Opt. Phys. 49 (2016)

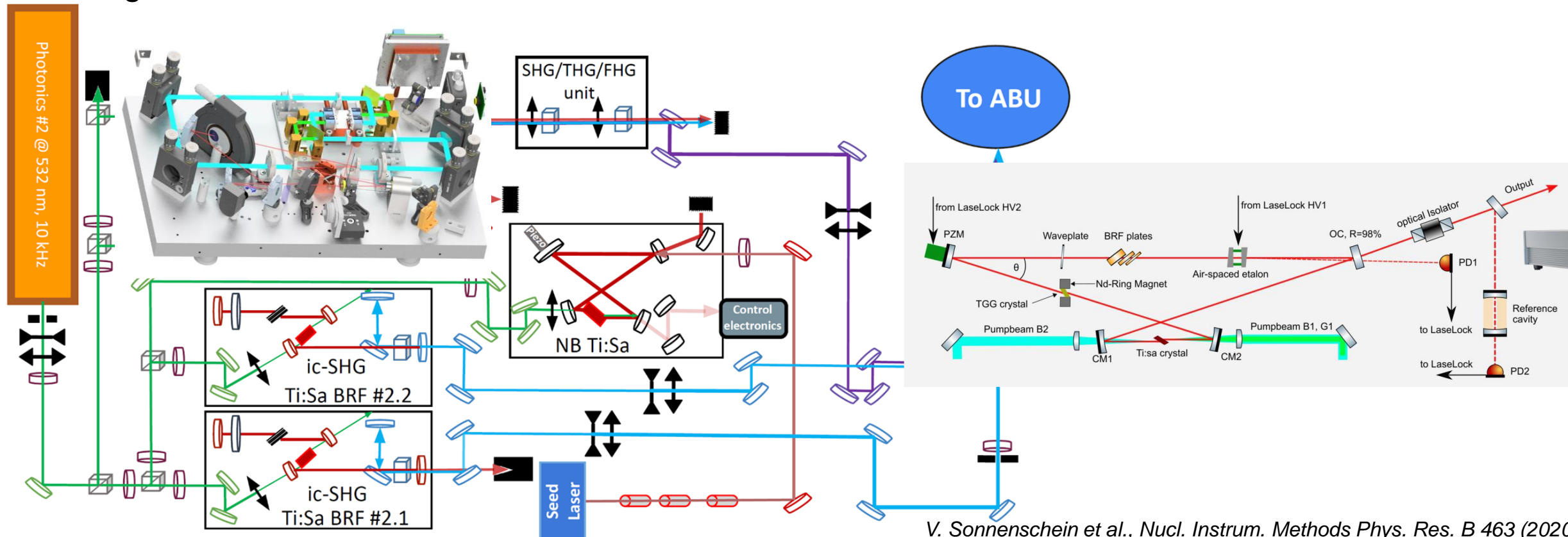
Upgrades

- Diode pumped cw Ti:sapphire cavity to replace current seed laser in order to expand tuning range



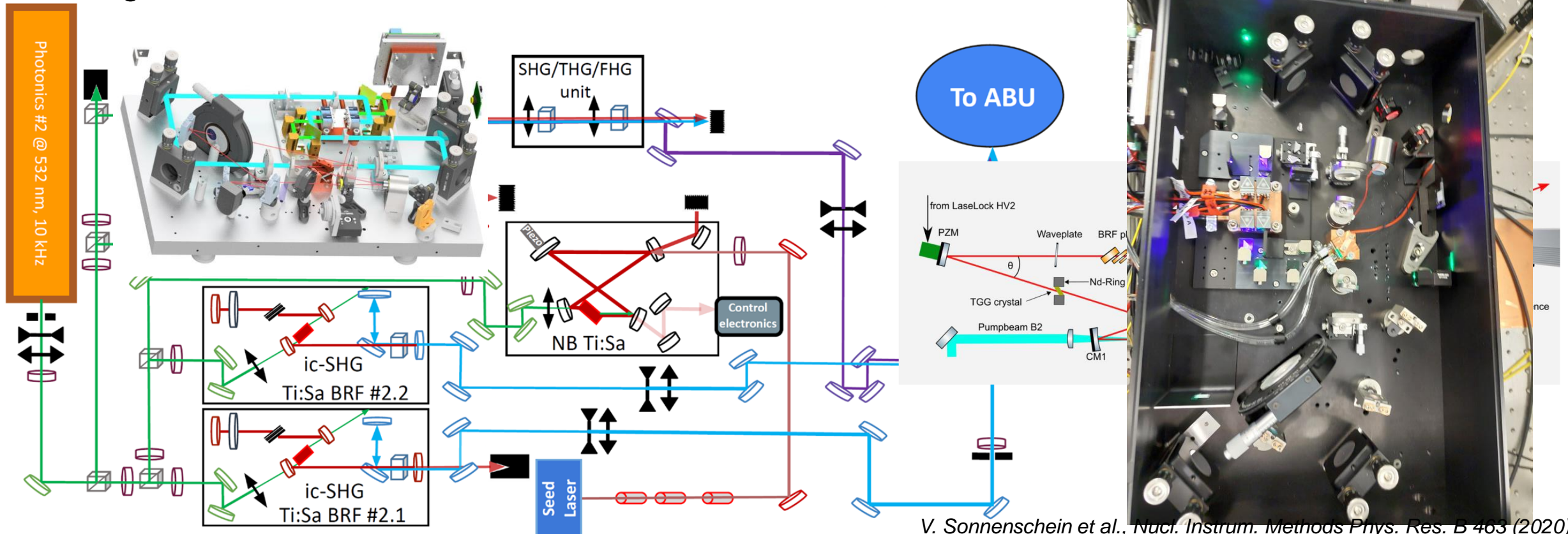
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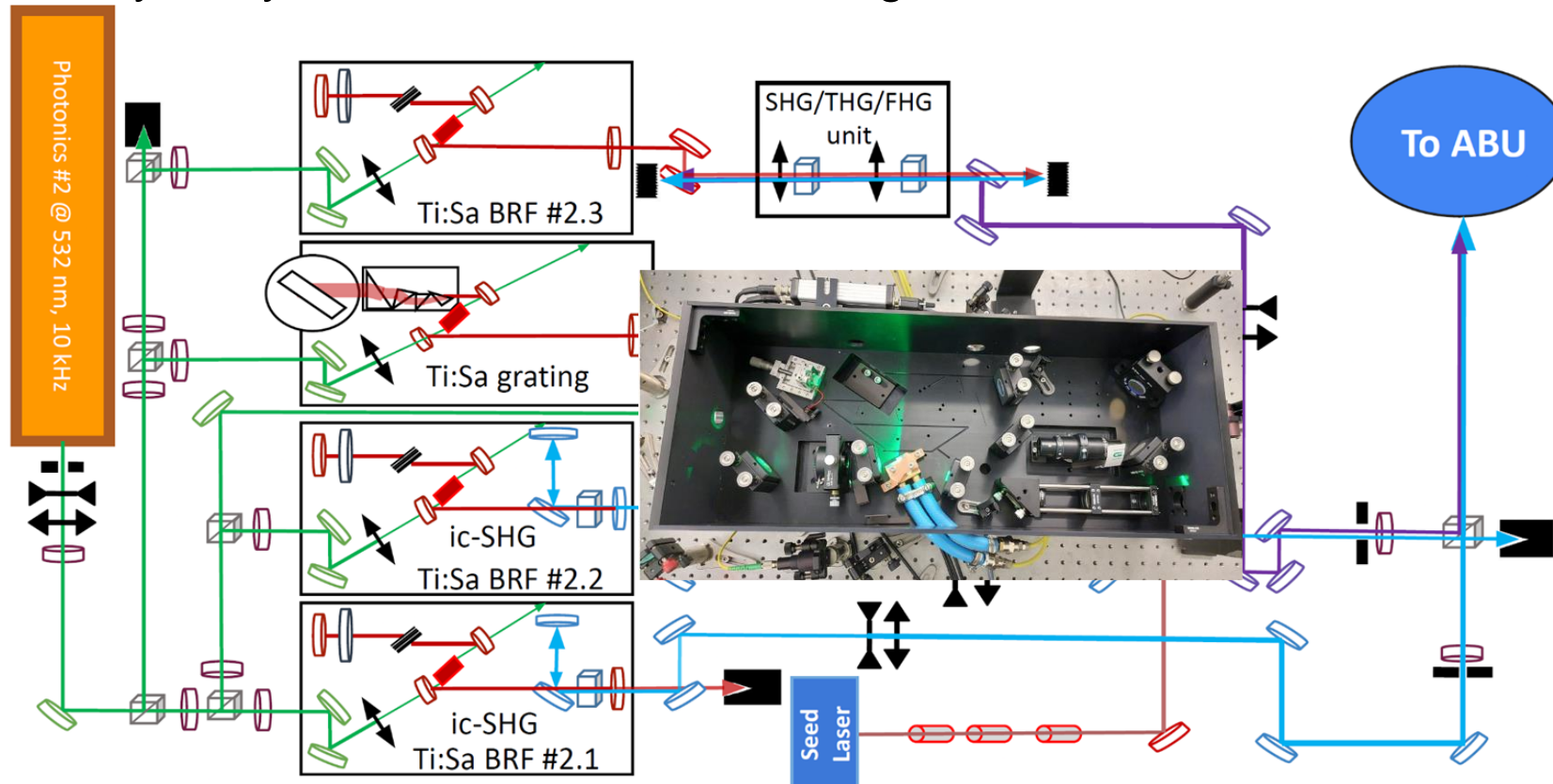
Upgrades

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Upgrades

- Before only one injection-locked narrow-band Ti:sapphire laser, first version developed in Jyväskylä, in use for commissioning S3-LEB at LPC



- One of latest designs, developed at Mainz, being put into operation at GISELE
- Easier and more stable operation for future experiments

Conclusion and outlook

- After successful RIS measurements of erbium and tin, scheme testing and development continues with palladium
- Continuous upgrades happening to provide better (more stable/easier/...) operation, especially with view on future experiments at S³
 - Control and command system being switched to EPICS to be S³ compatible

J. Romans et al., Nucl. Instrum. Meth. B 536 (2023)

Thank you for your attention!

