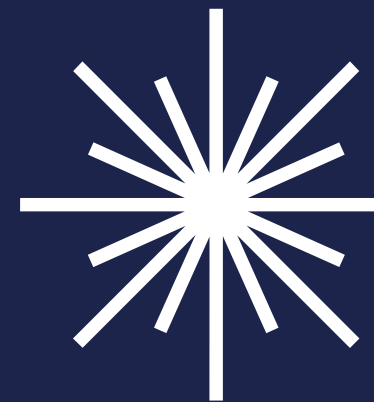


# WP2

## Novel techniques and technologies for actinide research

LISA ITN - Academic Day / 17.06.2022

Sebastian Rothe / CERN



*This Marie Skłodowska-Curie Action (MSCA) Innovative Training Networks (ITN) receives funding from the European Union's H2020 Framework Programme under grant agreement no. 861198*

# Objectives and tasks distributions

---

## Task 1 (CERN)

- Investigate novel target concepts, optimized for the extraction of actinides from thick ISOL targets

Mia Au (ESR3)

## Task 2 (CERN)

- Advance the in-source laser spectroscopy technique for achieving a sub-Doppler resolution required for efficient isomer separation and precise measurements of hyperfine structure and isotope shifts in actinides

Asar Jaradat (ESR2)

## Task 3 (GANIL)

- Improve the overall efficiency of the gas cell to gain sensitivity for the shortest actinide isotopes

Anjali Ajayakumar (ESR8)

## Task 4 (MSL) and Task 5 (HUB)

- Develop narrow linewidth Ti:Sapphire and OPO laser systems optimized for actinide research

Julius Wessolek (ESR9)

Mitzi Urquiza (ESR15)

# Deliverables

---

Number	Title	Lead beneficiary	Type	Dissemination level
D2.1	Optimized Ti:Sa laser system for high resolution laser spectroscopy	GANIL	Report	Public
D2.2	Implementation of PI-LIST at ISOLDE	CERN	Report	Public
D2.3	Pulsed narrow linewidth Ti:Sa amplifier	MSL	Report	Confidential
D2.4	Production of actinide isotopes using thick ISOLDE-type targets	CERN	Other	Public
D2.5	HighPower C-WAVE with customized linewidth option	HUP	Report	Confidential

# Milestones

Number	Title	Lead beneficiary	Means of verification
MS5	Evaluation of linewidth customization concepts	HUB	SWOT analysis of concept
MS6	Standard C-WAVE laser prototype with customized linewidth option	HUB	Laboratory prototype validated
MS7	Actinide molecules created and detected	CERN	Mass scan and particle ID (e.g. from decay tagging)
MS8	First high-resolution off-line laser spectroscopy measurement at GANIL	GANIL	Resonance peak linewidth of no more than 300 MHz in off-line conditions
MS9	Design of Ti:Sa amplifier	MSL	Laboratory prototype validated
MS10	On-line test of actinide production, extraction, dissociation and ion beam production	CERN	Presentation of test results to the Group for the Upgrade of ISOLDE (GUI)
MS27	First high-resolution on-line laser spectroscopy measurement at GANIL-S3	KUL	Resonance peak linewidth of no more than 300 MHz in on-line conditions