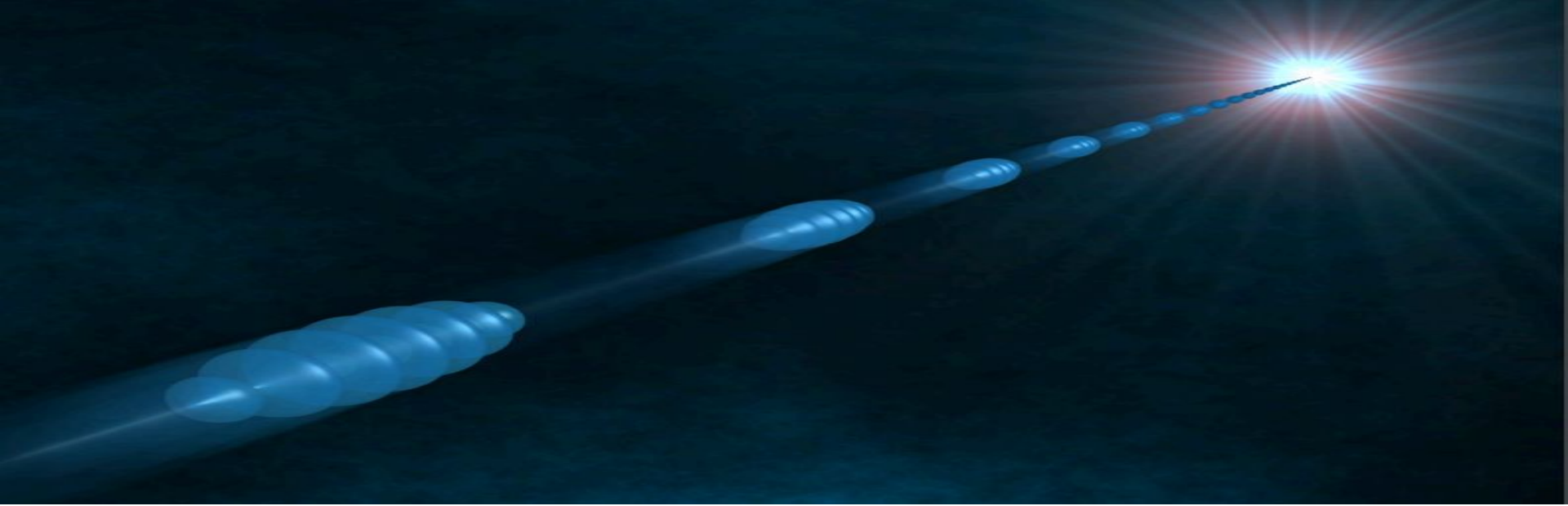
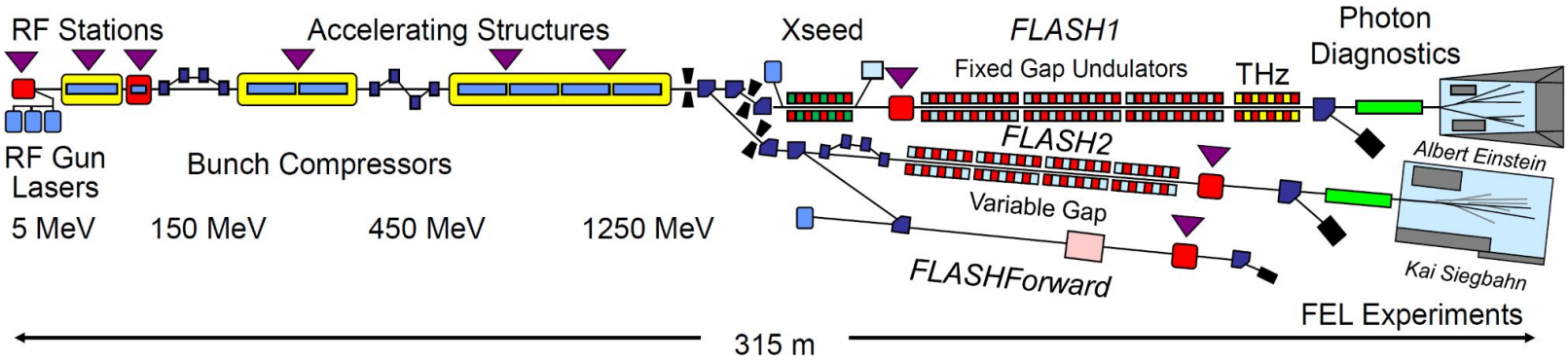


# Welcome to the 3rd FLASH2020+ Start to End Simulation Workshop
# 06-12-2022 to 08-12-2022.

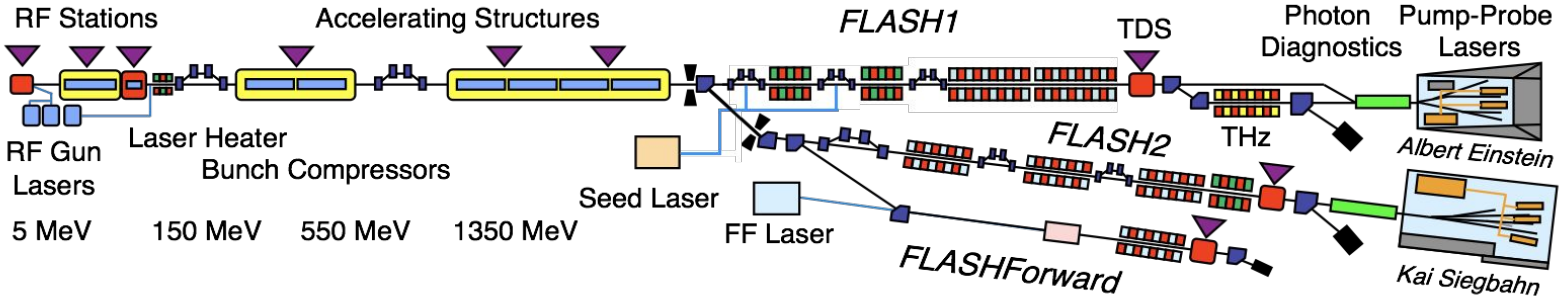
# The free electron user facility FLASH

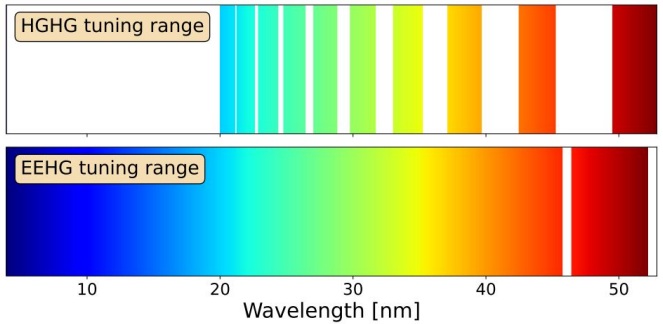



- Superconducting linac@**1MHz burst**, up to 8000 pulses/sec
- Two SASE beamlines **FLASH1** (fixed gap) and **FLASH2**
- **4-90 nm**
- Up to **1.25 GeV** → since 2022 up to **1.35GeV**
- **R&D** projects (Xseed & FFW)
- Upgrade: **FLASH2020+**

# FLASH2020+ project: Seeding at FLASH1

## Fully coherent soft x-ray pulses at 1MHz




- Echo-Enabled Harmonic generation (EEHG) down to **4nm**
- Wavelength tunability with EEHG and HGHG **4nm - 60nm**
- First high rep. rate seeding worldwide at **1MHz**

**Successful seeding** relies on **high quality** e-beam and seed lasers:

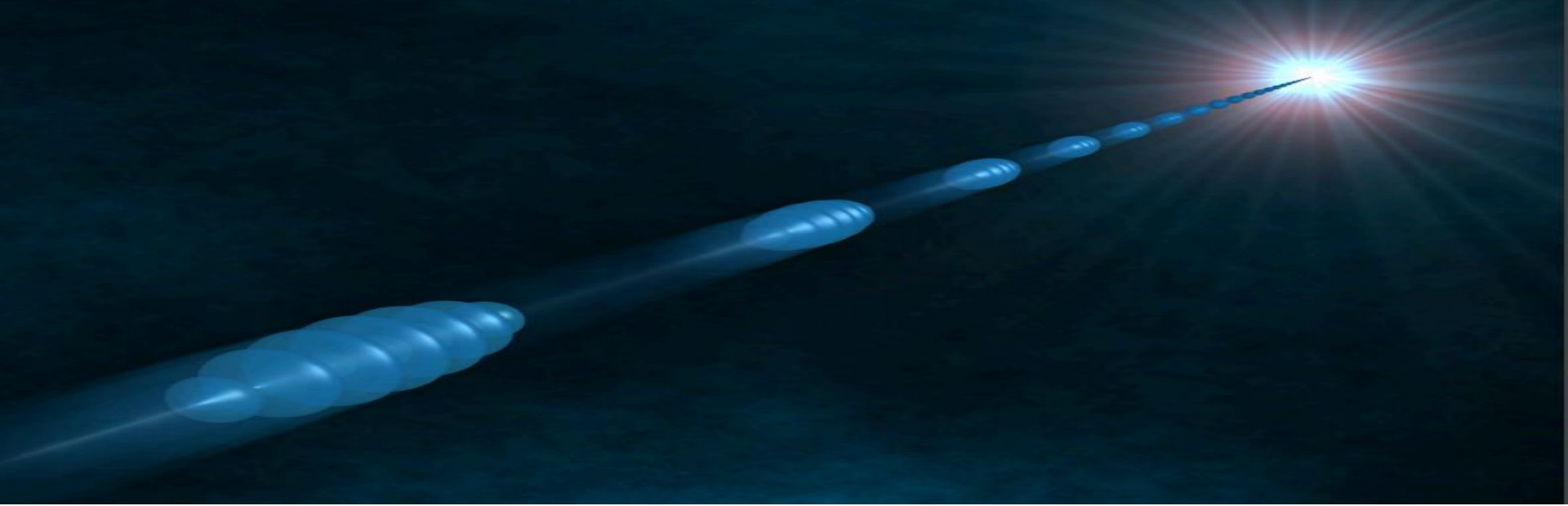
- Electron bunch preparation
- R&D for optimal lasers
  - *Seed1:* ~343nm, 100MW, 500fs
  - *Seed2:* ~297-317nm, 300MW, 50fs

# Today's schedule

**13:30** → 16:00 **General Overview and Update: Intro Session**

**Convener**: Sven Ackermann (FS-FLASH (FLASH))

| | | |
|---|---|---|
| 13:30 | **Welcome to the 3rd FLASH2020+ Workshop**<br>**Speaker**: Georgia Paraskaki (MFL (FLASH)) | 15m |
| 13:45 | **Intro and overview of the workshop**<br>**Speaker**: Pardis Niknejadi (MPY (Beschleunigerphysik)) | 30m |
| 14:15 | **Coffee and light Snacks** | 15m |
| 14:30 | **Requirement check for Hands-on session (Electron Beam)**<br>**Speaker**: Philipp Amstutz (MFL (FLASH)) | 20m |
| 14:50 | **Requirement for Hands-on Session (Laser)**<br>**Speaker**: Tino Lang (FS-LA (Lasers for Users)) | 20m |
| 15:10 | **Coffee and General Q&A** | 20m |



Welcome to the workshop!

We hope for fruitful discussions and we are available for any questions or concerns

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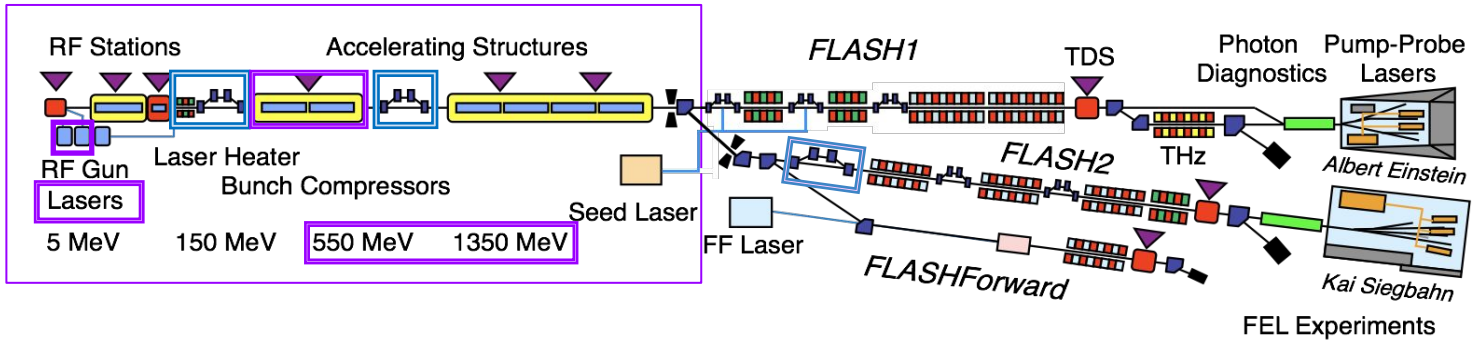
# FLASH2020+

## Work in progress




- **New accelerating modules**
  - Increasing energy (1.25 → 1.35 GeV)
- **Renew photocathode lasers**
  - Increasing operation flexibility
- **Laser heater installation**
  - Suppressing microbunching
- **Additional FLASH2 BC**
  - Flexible compression schemes for simultaneous SASE-Seeding operation
- **Renew bunch compressors**
  - Flexible compression schemes with variable $R_{56}$