

Simulation Optimization of the 3.5-cell 1.3 GHz SRF Gun for DALI

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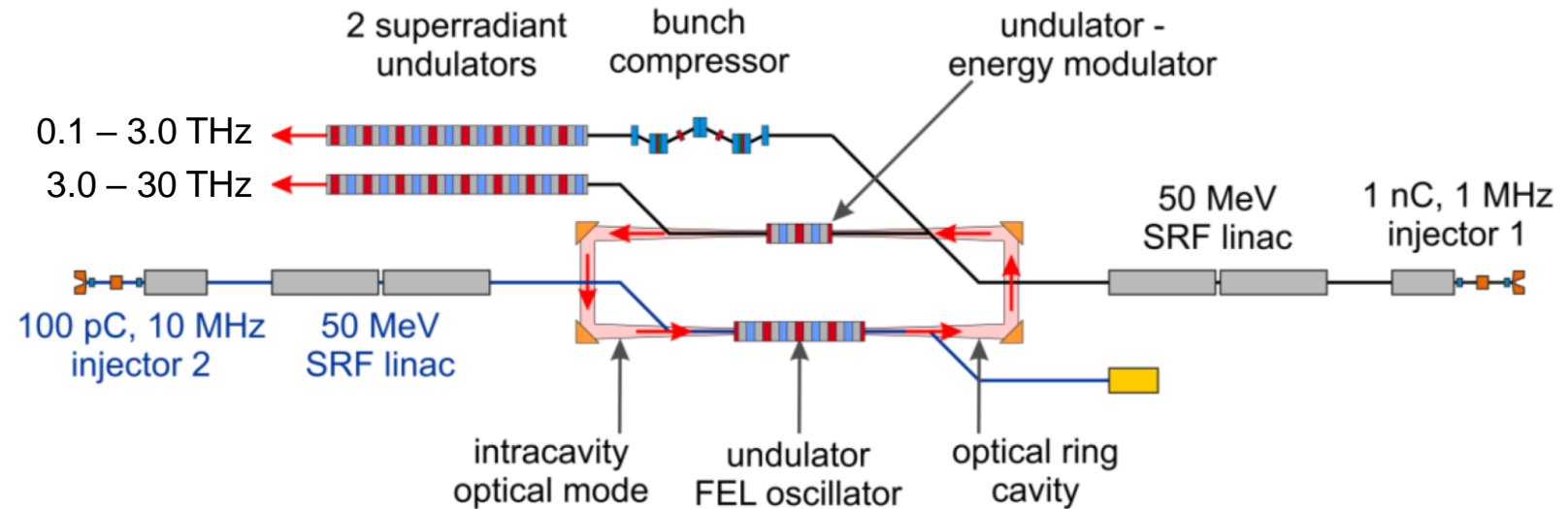
Development of a terahertz user facility

- **0.1 to 30 THz**
- **10 - 15%** bandwidth
- **mJ** photon pulse energies
- **1 MHz** repetition rates
 - Requires **cw** operation

Dresden Advanced Light Infrastructure DALI

Development of a terahertz user facility

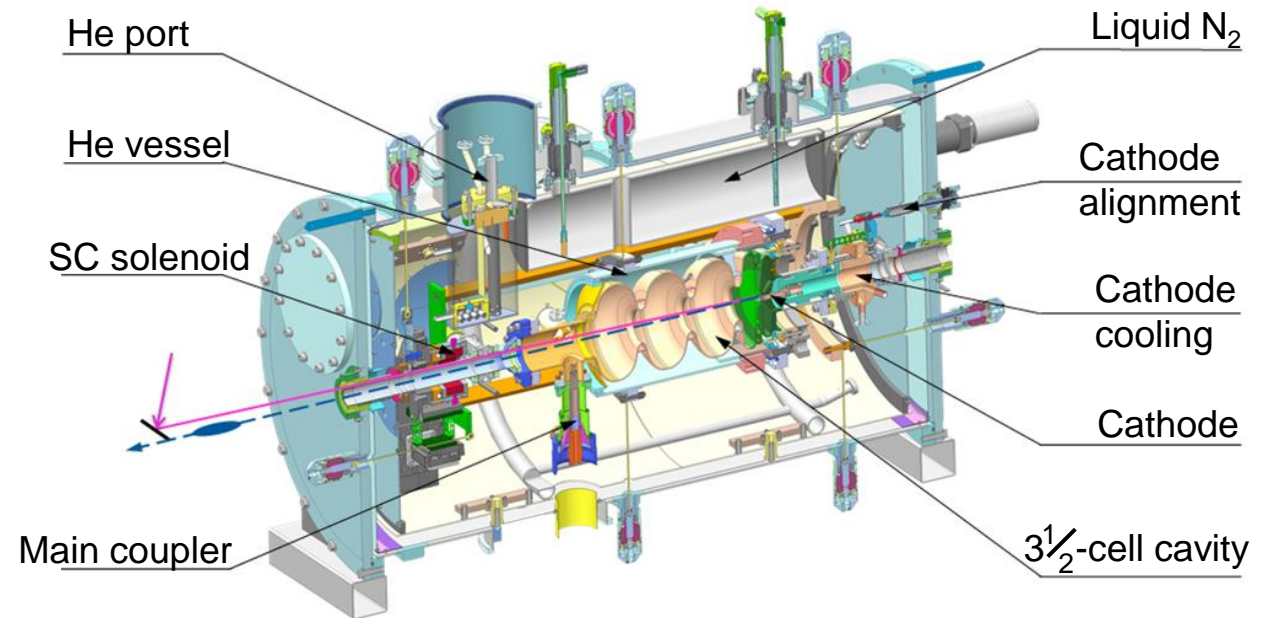
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SRF Gun at HZDR

3.5-cell 1.3 GHz SRF Gun

- Peak gradient **30 MV/m**
- Operation temperature **2 K**
- Thermal losses
 - 7 W static loss
 - Up to 33 W dynamic loss
- Bunch charge **1 nC @ 1 MHz**
 - **1 mA**



- DALI-required performance to be shown in simulation and experiment

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ASTRA studies

- Simultaneous optimization of transverse and longitudinal emittance
- Gun gradient, bunch charge, gun frequency, cavity shape **fixed**
- Variation of **transverse** and **temporal laser pulse size**, **RF phase**, **cathode retraction** & **solenoid strength**

→ Meet me at the poster for discussions!

Contact

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