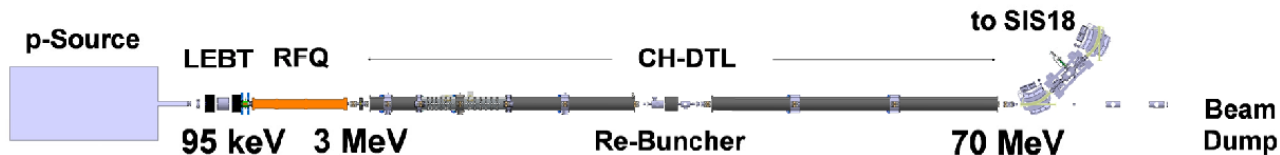


## Accelerator Development

### FAIR p-Linac contributions in FP18/21

Working Group U. Ratzinger

IAP, Goethe-University Frankfurt

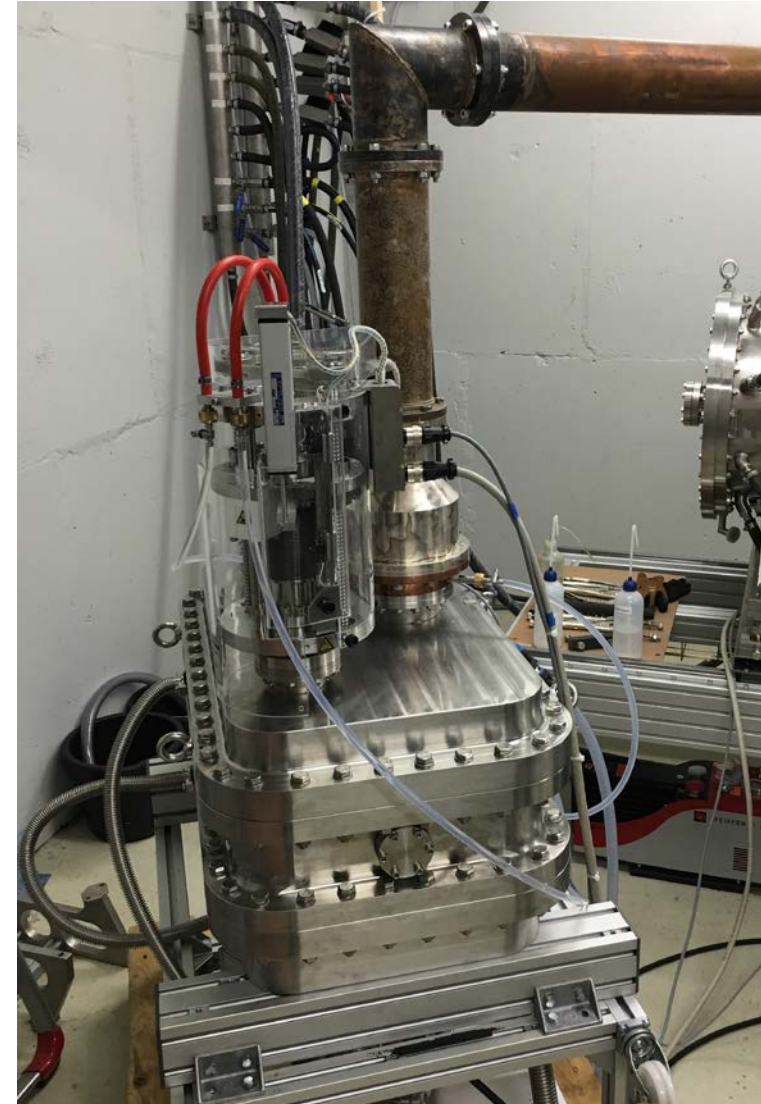
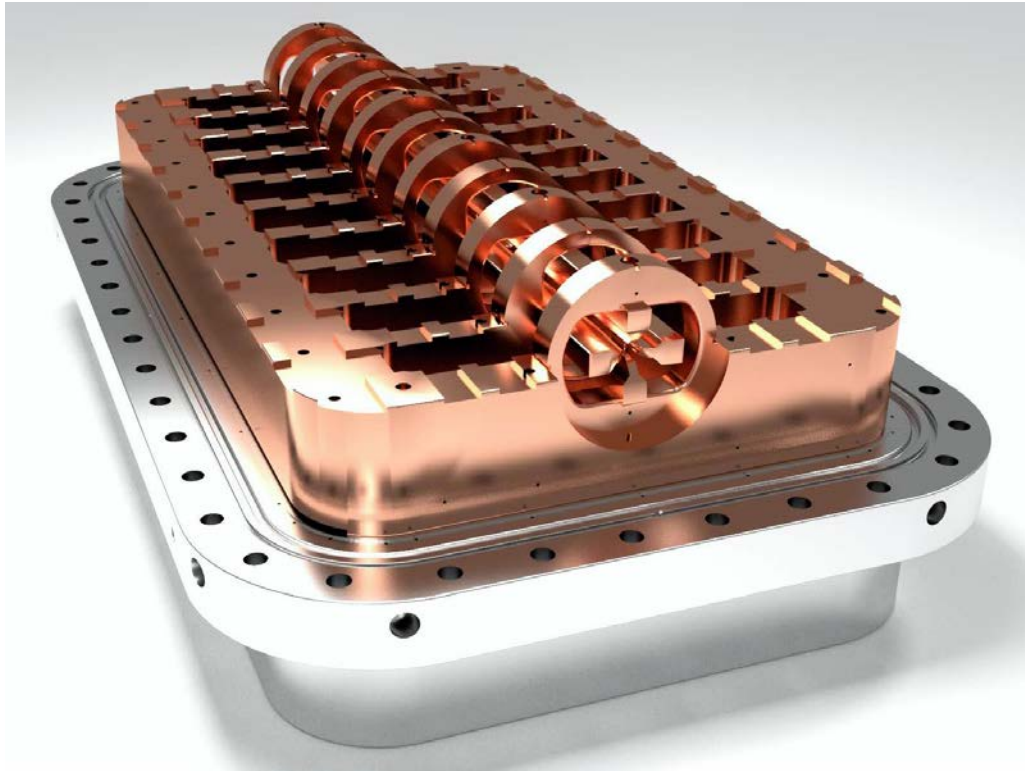


Maximilian Schütt – KfB Verbundworkshop, TEMF Darmstadt  
08/31/2017

# Modulated Ladder RFQ for FAIR p-Linac

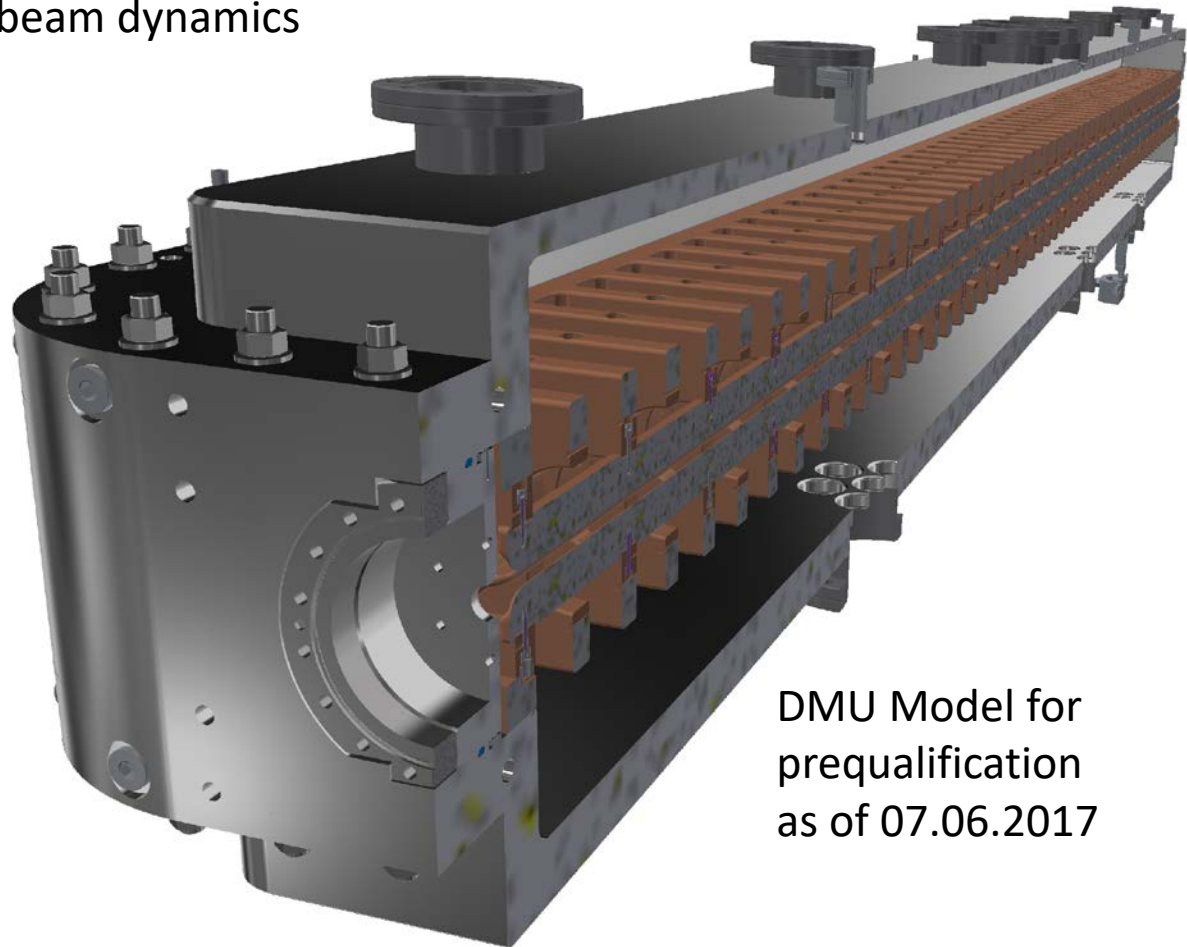
630 mm bulk copper Ladder RFQ prototype  
successfully tested at GSI test bunker in FP12-15

- Stable operation **up to 500 kW**
- Kilpatrick value 3.1



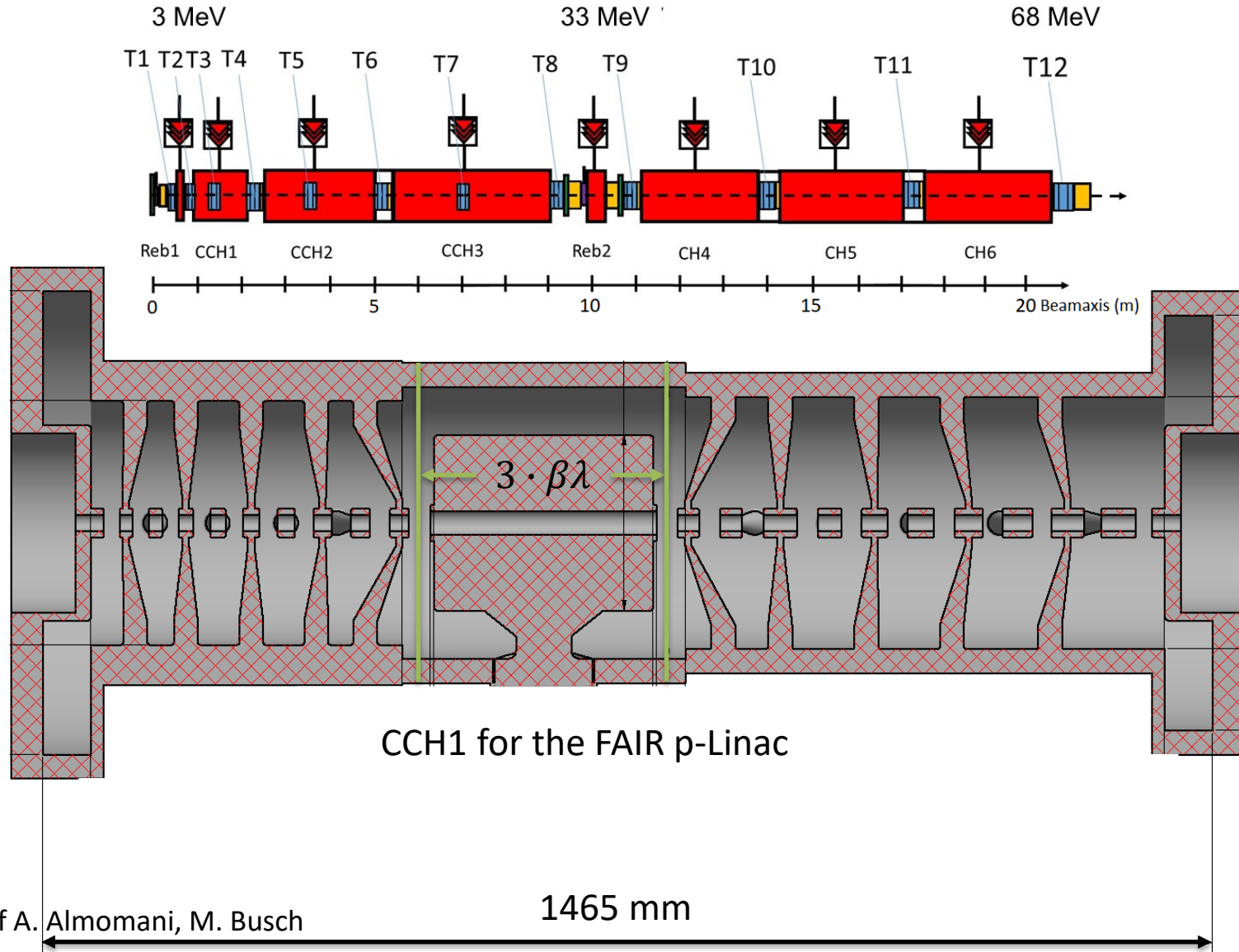
# Modulated Ladder RFQ for FAIR p-Linac

- 3.4 m modulated Ladder RFQ design+manufacturing in FP15-18 including an improved beam dynamics
- **FAT in mid 2018**
- 2018-19: final assembly: Vacuum supply+coupler, tuning, RF-measurements, conditioning and High Power tests at the GSI test bunker
- Functional testing at high fields
- 2020-21: **Proof of Principle:** beam tests including LEPT, Emittance measurements
- Tuner influence on Flatness & Beam Energy



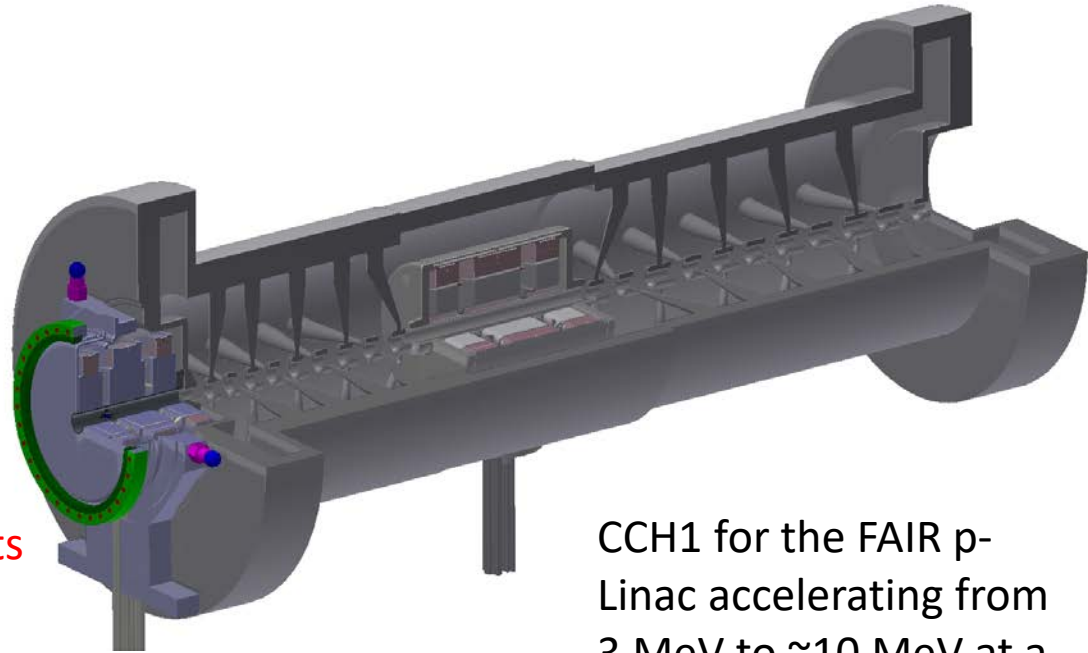
DMU Model for  
prequalification  
as of 07.06.2017

# CH-DTL for FAIR p-Linac



Cooperation with GSI in respect to:

- Mechanical Detail Design
- Audition of Manufacturing
- Final Assembly
- RF-measurements and optimization
- Design and Adjustment of Plungers
- Tuning of Voltage Distribution including Simulations & Measurements
- RF-conditioning
- Contribute & Preparations for first beam tests and beam diagnostics
- Beam optimization for injection into SIS18
- Collimator system and beam dynamics in collaboration with GSI



CCH1 for the FAIR p-Linac accelerating from 3 MeV to ~10 MeV at a length of 1.5 m.

Thank you!

## AG Prof. Ulrich Ratzinger

Name	Position	Funktion
Klaus Volk	Wiss. Mitarbeiter	Strahlexperimente, Ionenquellen
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Hendrik Hähnel	Postdoktorand	Strahldynamik Unilac
Batu Klump	Postdoktorand	Strahlexperimente, Ionenquellen
Marc Syha	Doktorand	RFQ – Strahldynamik und Resonator
Max Schütt	Doktorand	Resonatordesign, Leiter - RFQ
Adem Ates	Doktorand	Strahl diagnose
Heiko Niebuhr	Doktorand	Strahltransport
Onur Payir	Master	Strahlseparation
Jan Kaiser	Master	Unilac - Hochenergieausbau
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