

*ScandiNova*



research  
instruments



# ScandiNova's Users Meeting 2023

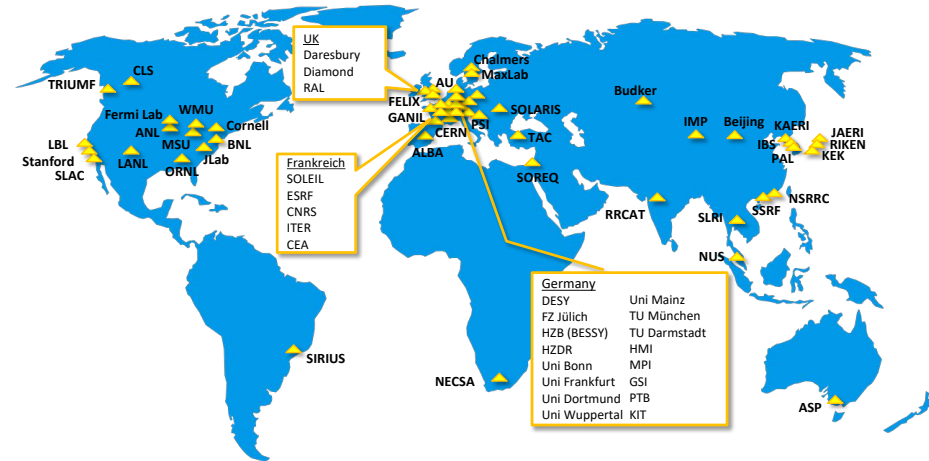
12 – 14 April 2023, Phoenix, US

Nuria Ayala Cintas

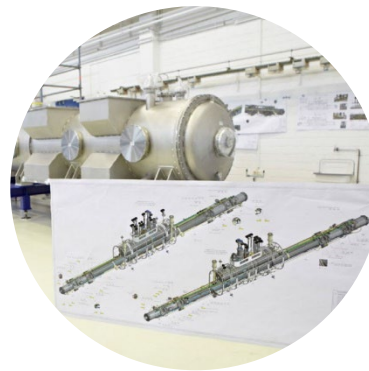
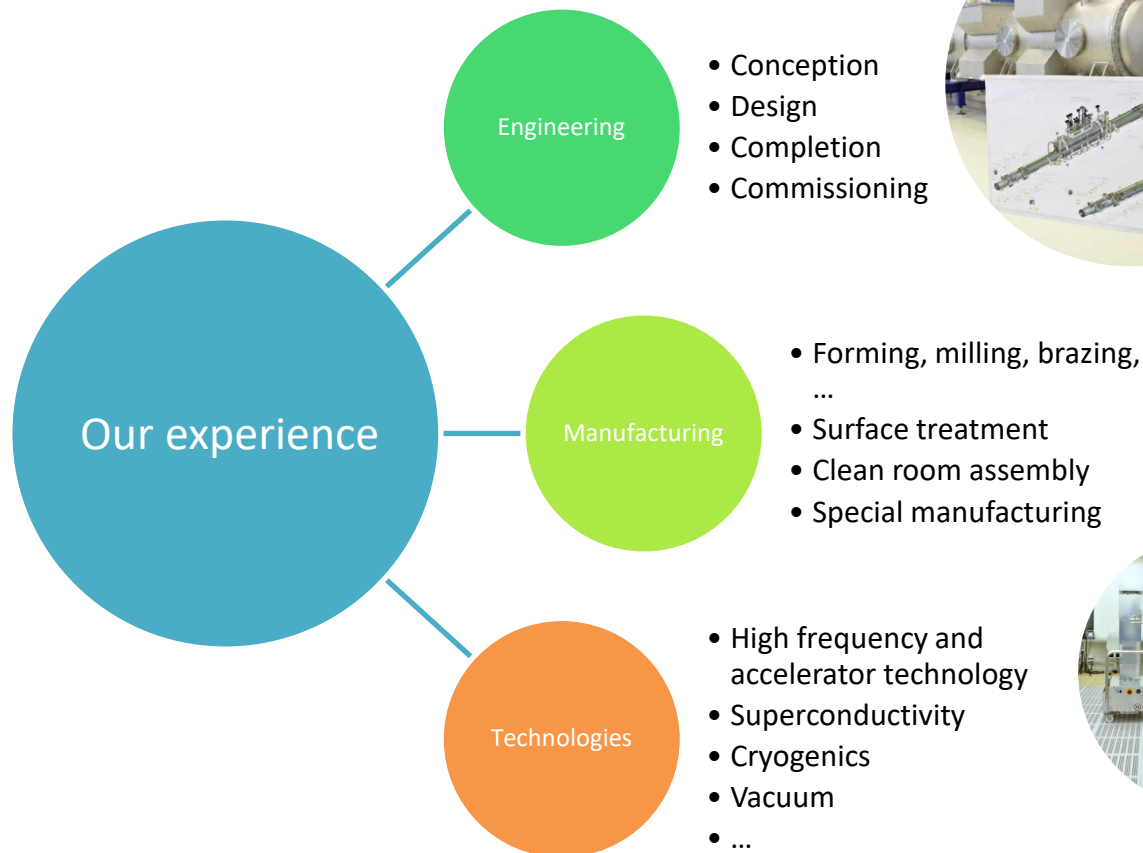
# RI in a nutshell

## Facts and figures

- Founded in 2009
- Employees 330
  - ca. 115 physicists, engineers
  - ca. 160 manufacturing specialists
- Annual turnover >55 million EUR
- Established with the core team of ACCEL Instruments GmbH (1994-2009) and of INTERATOM/Siemens
- Management holds significant equity stake in the company which is majority owned by Bruker EST, Inc.

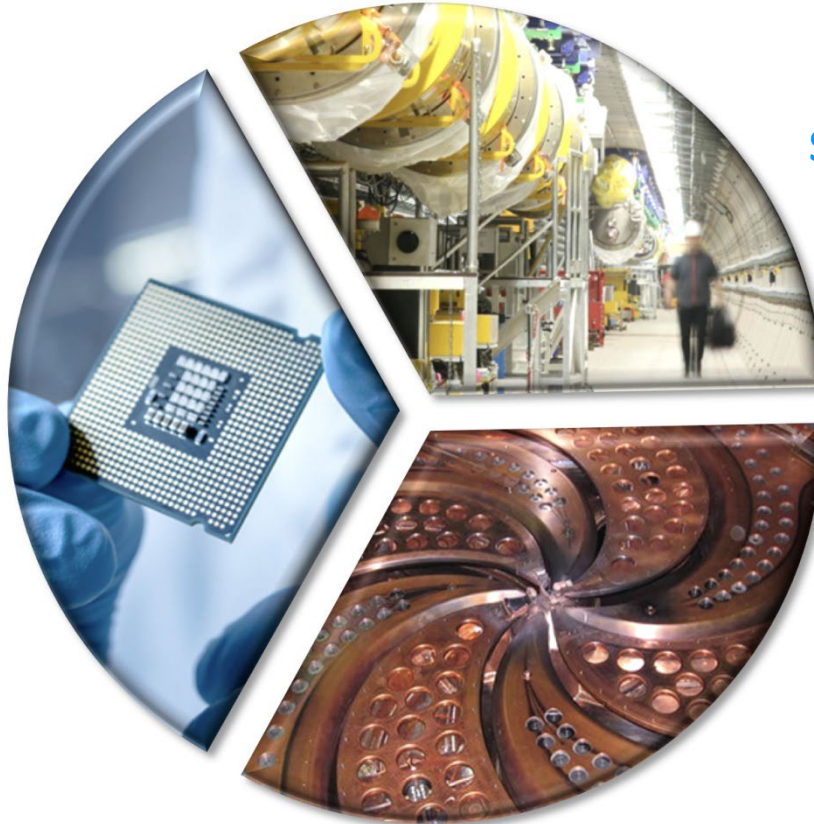


# RI: More than a manufactory



# Our customers

Industry

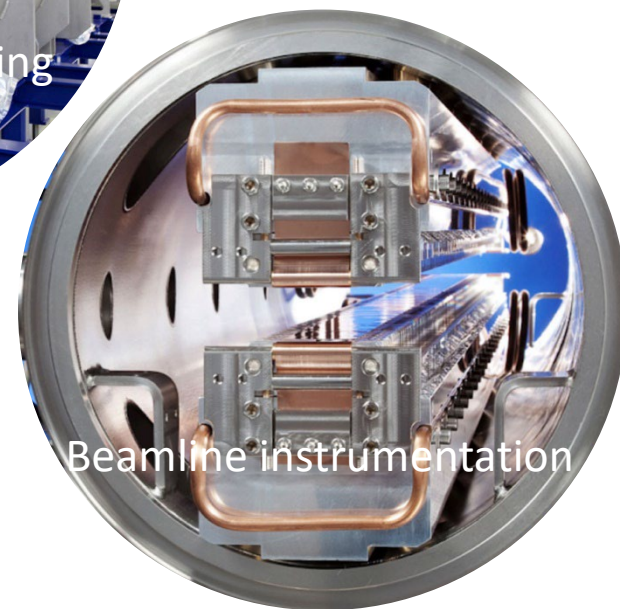
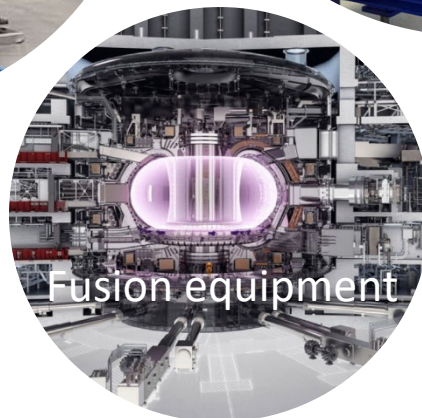
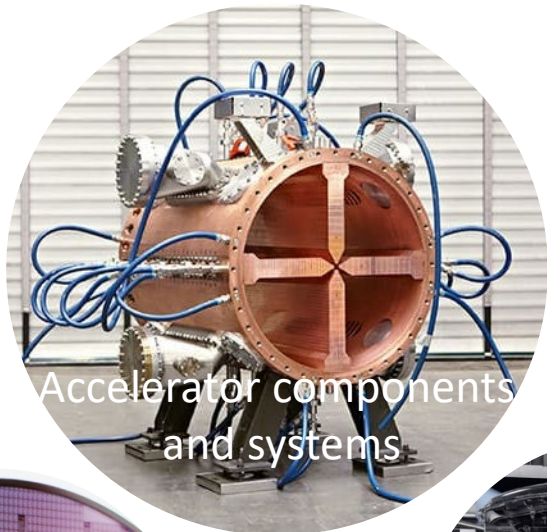


Science Research

Medical & Pharma



# Our products

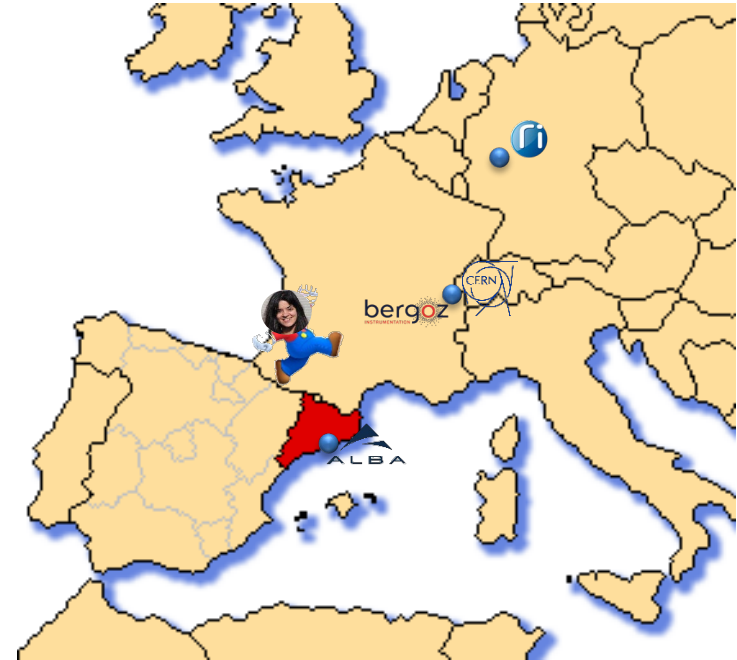


# About me

Physicist with PhD in Electronics Engineering



- ✓ 2014-18 Synchrotron ALBA-CELLS
- ✓ 2018-21 Fellowship in CERN
- ✓ 2022-23 Bergoz Instrumentation
- ✓ February 2023 Research Instruments



# ScandiNova Products

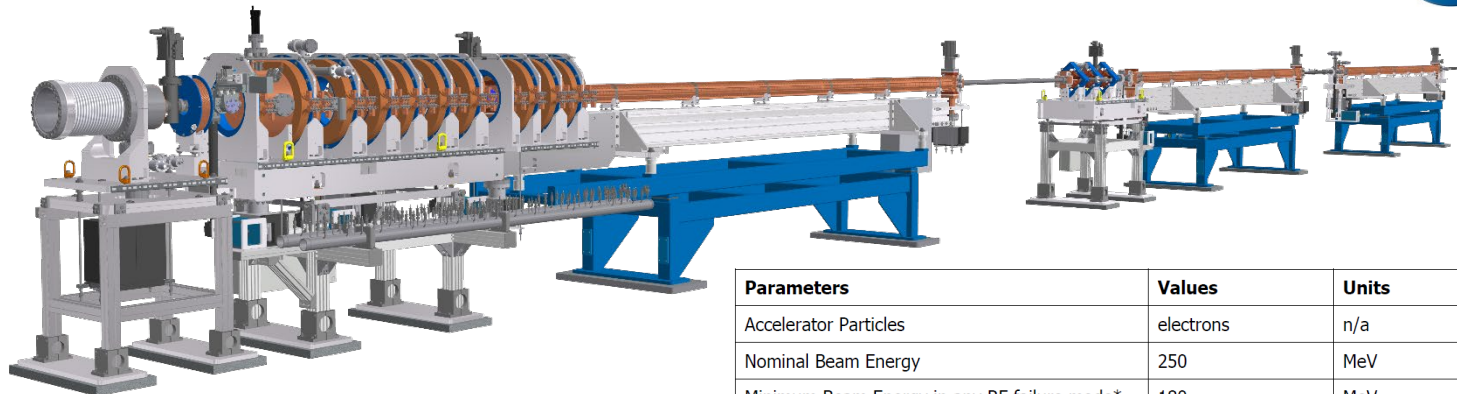
Klystron based RF units for LINAC RF power

LINAC for NSLS-II





# CLS LINAC



Canadian  
Light  
Source    Centre canadien  
de rayonnement  
synchrotron

Parameters	Values	Units
Accelerator Particles	electrons	n/a
Nominal Beam Energy	250	MeV
Minimum Beam Energy in any RF failure mode*	180	MeV
Beam charge per 500 MHz Bunch (adjustable)**	>0.08	nC
Bunch Train Length, 1 to 70 bunches at 500 MHz (2 ns RF buckets)	1 to 140	ns
Center energy stability (pulse to pulse)***	≤0.1	% (RMS)
Energy Spread (RMS)****	≤0.5	% (RMS)
Normalized Emittance (1s) (X or Y)	≤50	n mm <sup>2</sup> ·mrad
Injector Frequency adjustable to *****	3000.24 ± 0.050	MHz
Booster Synchrotron RF Frequency (see Section 5.3.3)	500.04 ± 0.005	MHz
Injector Nominal Repetition rate	1	Hz
Modulators and Klystrons Repetition Rate	1 to 60	Hz
Pulse to pulse beam position variation (RMS)	0.2	mm
Pulse to pulse beam angle variation (RMS)	0.05	mrad



# Klystron & modulator



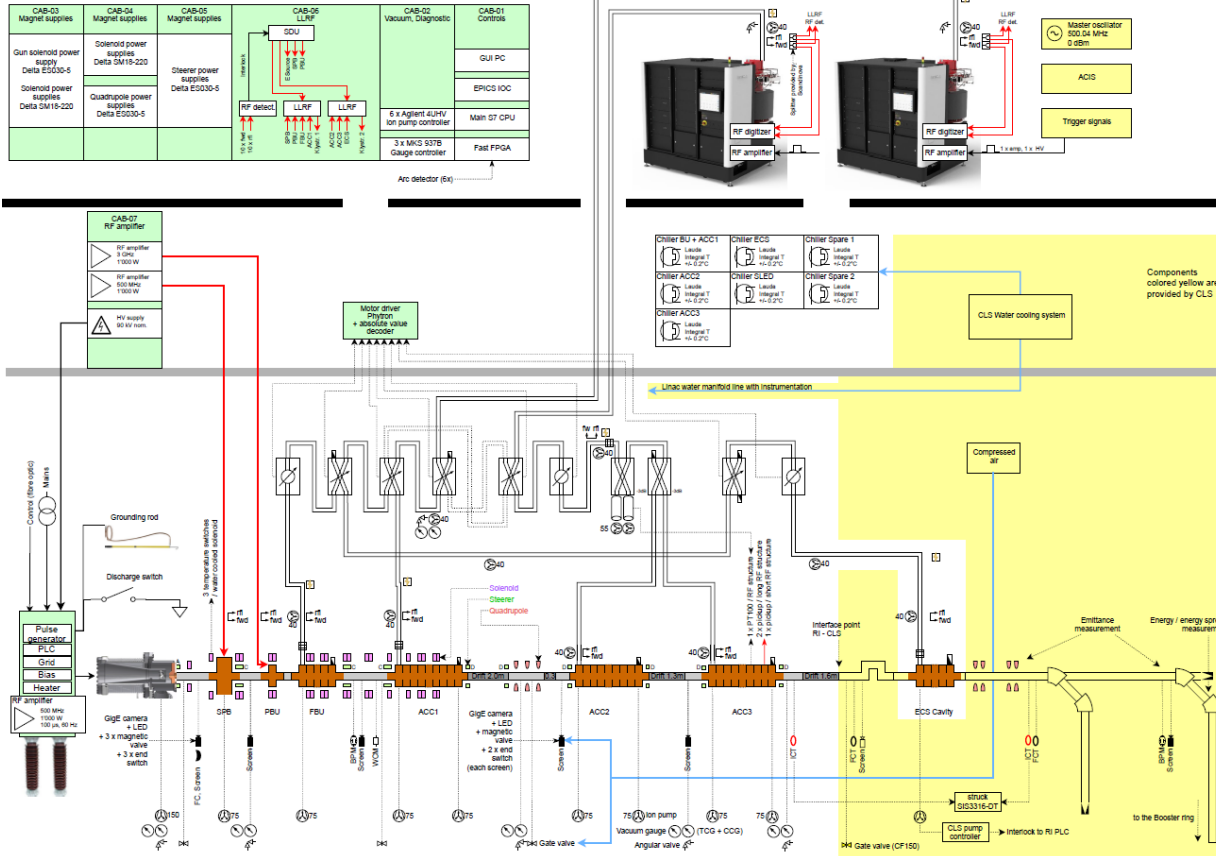
Model	f (MHz)	P <sub>peak</sub> (MW)	P <sub>avg</sub> (kW)	Eff. (%)	Gain (dB)	Pul. length (μs)	Pulse rate (pps)	Beam volt (kV)	Beam curr. (A)	W (kg)	L (m)
E37302A, H3	300.24	40	10.5	40	52	4.5	60	315	400	150	1.5



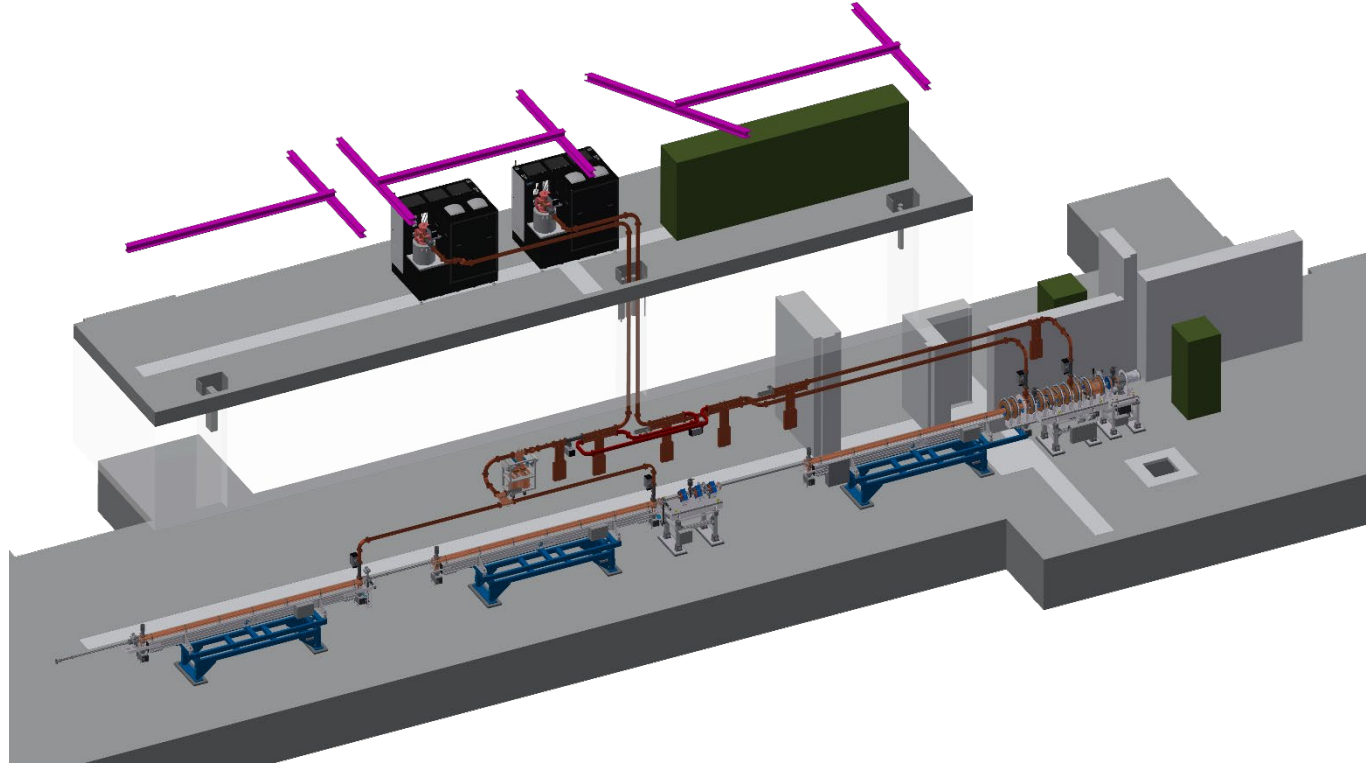
## K300 Rating:

Modulator peak power	MW	119.7	
Modulator average power	kW	7.2	43.2
Voltage range	kV	0 – 315	
Current range	A	0 – 380	
PRF range	Hz	10	60

# LINAC system



# LINAC system



# Thank you

Questions?

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