



# RF HEAT LOAD COMPENSATION FOR THE EUROPEAN XFEL

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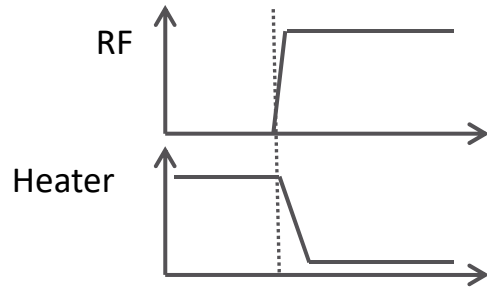
# Why Heat Load Compensation?



- The static load in the XFEL cryo system @ 2K is roughly 600W
- The additional dynamic load @ 2K is currently about 350W @ 15GeV
- The change in the total load will change the amount of evaporated Helium in the 2K regime.
- As a result this would:
  - Change the total flow in the system.  
This will cause problems – if not a system failure - for the cold compressors
  - Change the pressure in the 2K regime @ 30mbar. It could detune the cavities
- We have to avoid such a situation!

# Solution: Heat load compensation

- Run the heaters in the Helium bath at a higher level.
- Reduce the heater power proportional to the RF power.



- Requires: Calculation of heat load based on the current RF parameters.



# Conclusion

- The initial implementation of the heat load compensation is successfully in operation since June 2017
- Come to the poster to hear more about the details
- If RF heat load compensation does not attract you at all
- Maybe you find it interesting to discuss changes that happened between
  - 1987 – in Villars-sur-Ollon
  - and
  - 2017 – in Barcelona

