CW re-buncher status

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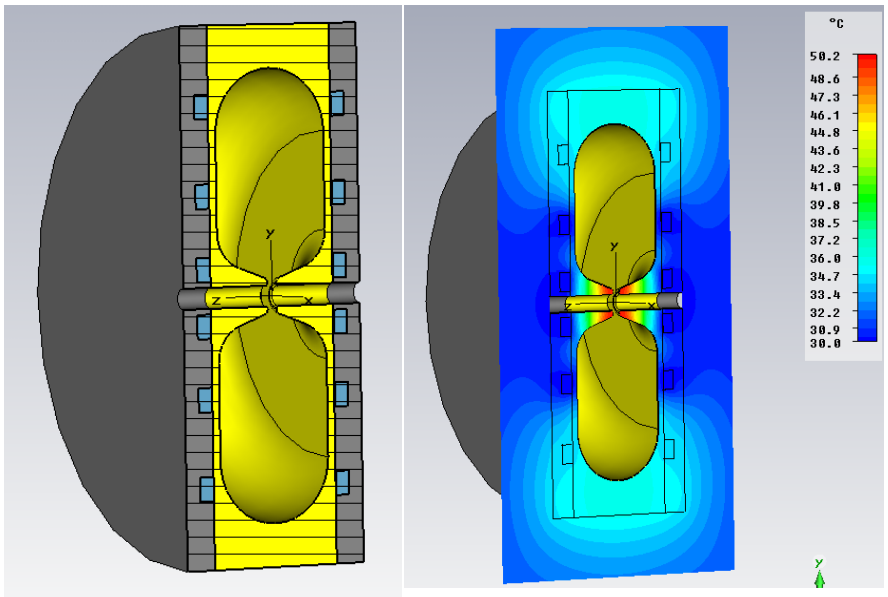
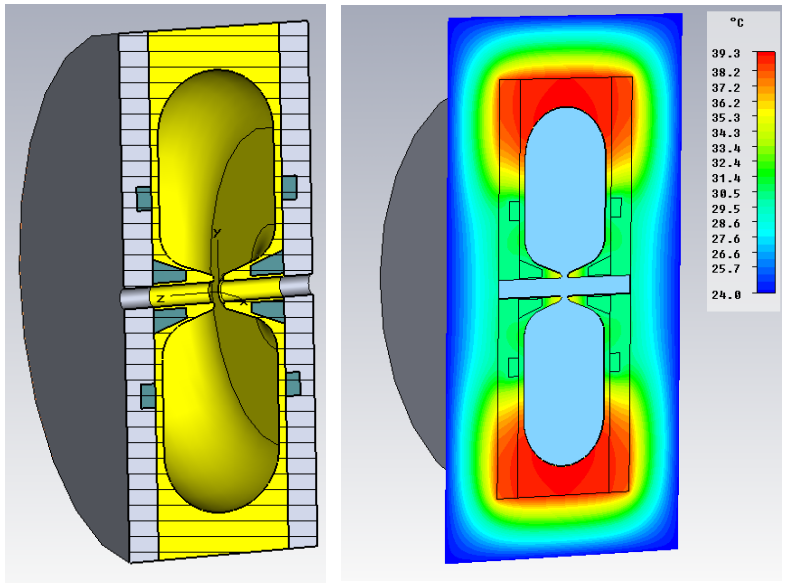
Pillbox re-buncher. Cooling.

v.1



Mechanically simpler design.

v.2



Idea was to reduce frequency excursion due to thermal deformation

P= 5 kW

Re-buncher cavity parameters

Aperture diameter increased from 28 mm up to 30 mm

Parameter	28 mm	30 mm
Frequency, MHz	325	325
Q factor	28402	28468
Aperture radius, mm	14	15
Gap, mm	13	13
Particle energy, MeV	2.5	2.5
Effect. shunt impedance, Ohm	2.59e6	2.31e6
Max. energy gain, kV	75	75
Power , kW	2.17	2.43
Max. electric surface field, MV/m	14.7	16.8

Losses increased by 12%. Maximal electric surface field also increased, but it still is in very safe margin. Some additional optimization may be done at the final stage of design.

Plans

- Make a preliminary mechanical design
- Estimate cooling capabilities and requirements
- Estimate vacuum and thermal deformation
- Incorporate a coupler and a tuner in the design (intent is to copy existing parts)
- Define mechanical design in general
- Optimize RF parameters
- Complete mechanical design