

# Project Status

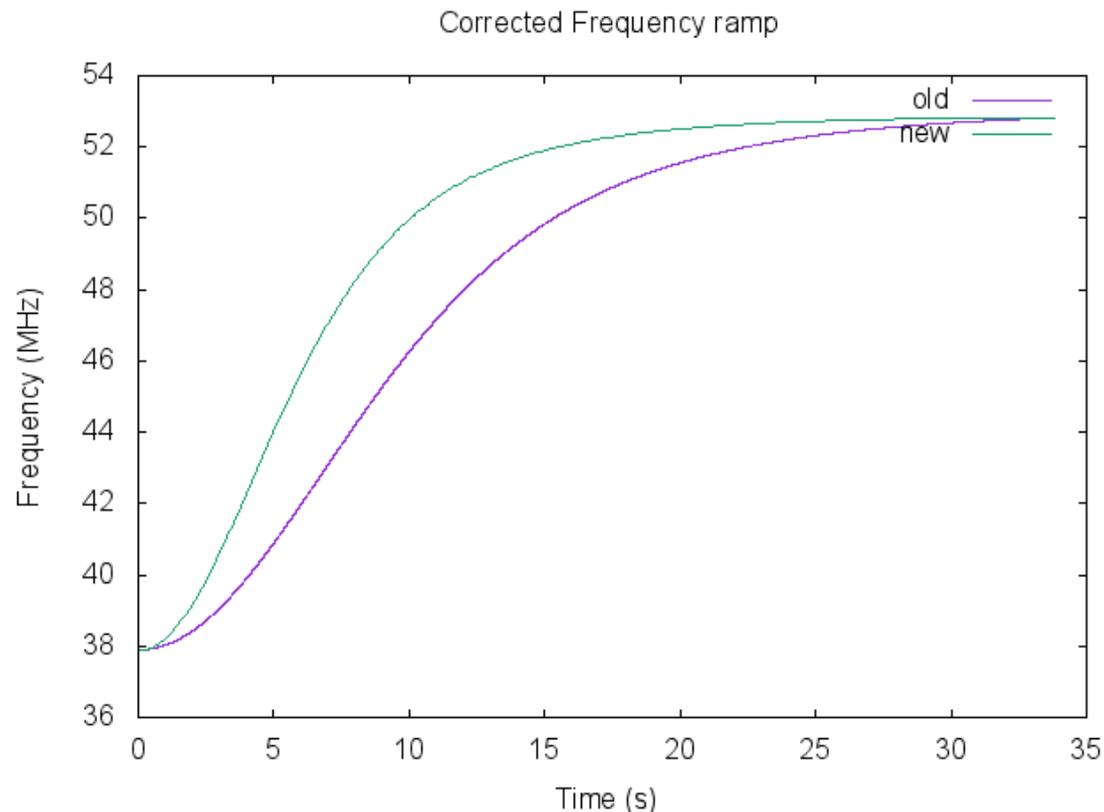
C.Y. Tan  
15 Oct 2015

# Current status

- Near completion of CST model of the cavity + power coupler – Gennady
  - Check step up ratio with CST – Robyn (Looks ok)
  - Checking with transmission line model – Robyn and Tan (Looks OK)
    - There are disagreements between Mathematica and ADS, ~20% at high frequencies. Traced to small imaginary parts.
  - Checking anode input impedance of Booster fundamental cavity with COMSOL – Mohamed
  - Loadline calculations show cavity can be powered with efficiencies > 65%, PDC < 76 kW. (Looks ok)
- HOM damper CST model started – Gennady
  - Initial Smythe HOM damper model – Tan

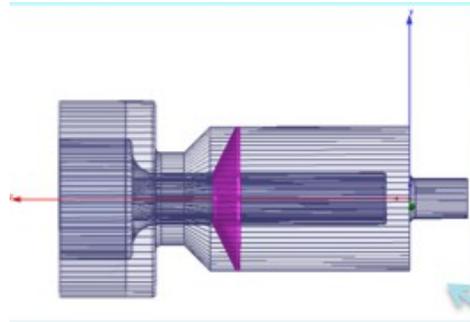
# Current status (cont'd)

- Solenoid for biasing garnet – Iouri
  - Changes to ramp profile affects eddy currents and design of solenoid



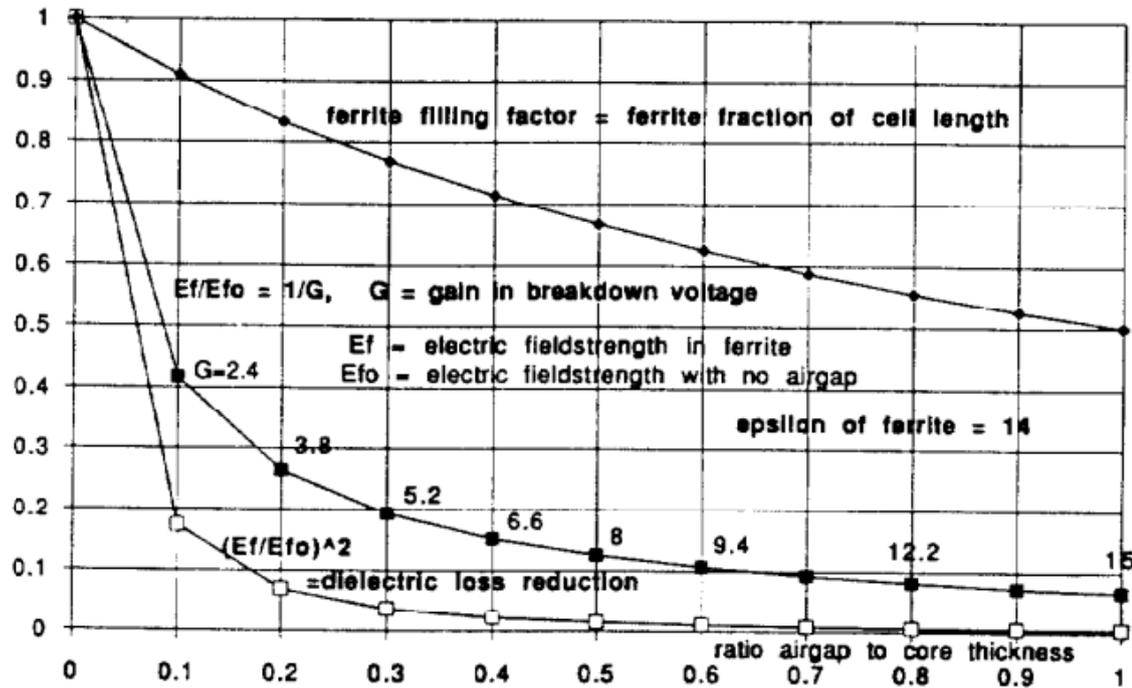
# Current status (cont'd)

- Window – Ding
  - Initial selection, but requires preliminary design of cavity to continue.



- Mechanical design – Kevin
  - Have discussed with Kevin about design issues.
    - Need to get info on certain aspects of the mechanical design.
  - Received information from CERN about how they glue garnet to alumina.
    - CERN polymer lab did the gluing for them. Utilize them?

# Add air gaps?



Comes from  
PAC1991\_0748.pdf,

New Design Concepts for  
Ferrite-Tuned Low-Energy-  
Booster Cavities, Georg Schaffer.

Fig. 2. Effect of airgap: gain in breakdown voltage,  
and reduction of dielectric ferrite losses.

# Current status (cont'd)

- Mock cavity is being assembled – Robyn, and Tan
  - Possibility of getting a Master's student to help us with measurements.
- Received Werlatone power combiner.
  - Needs to be tested to see that it meets specs.
    - Low power test ok
    - high power test (3 kW) after startup.
- Solid state amplifier in process of being purchased
  - Bid process completed.
  - Vendor has been selected.



# Plans

- Review!
  - In Feb 2016
  - Started working on a document of our project.
    - Will ask people to contribute to sections.

