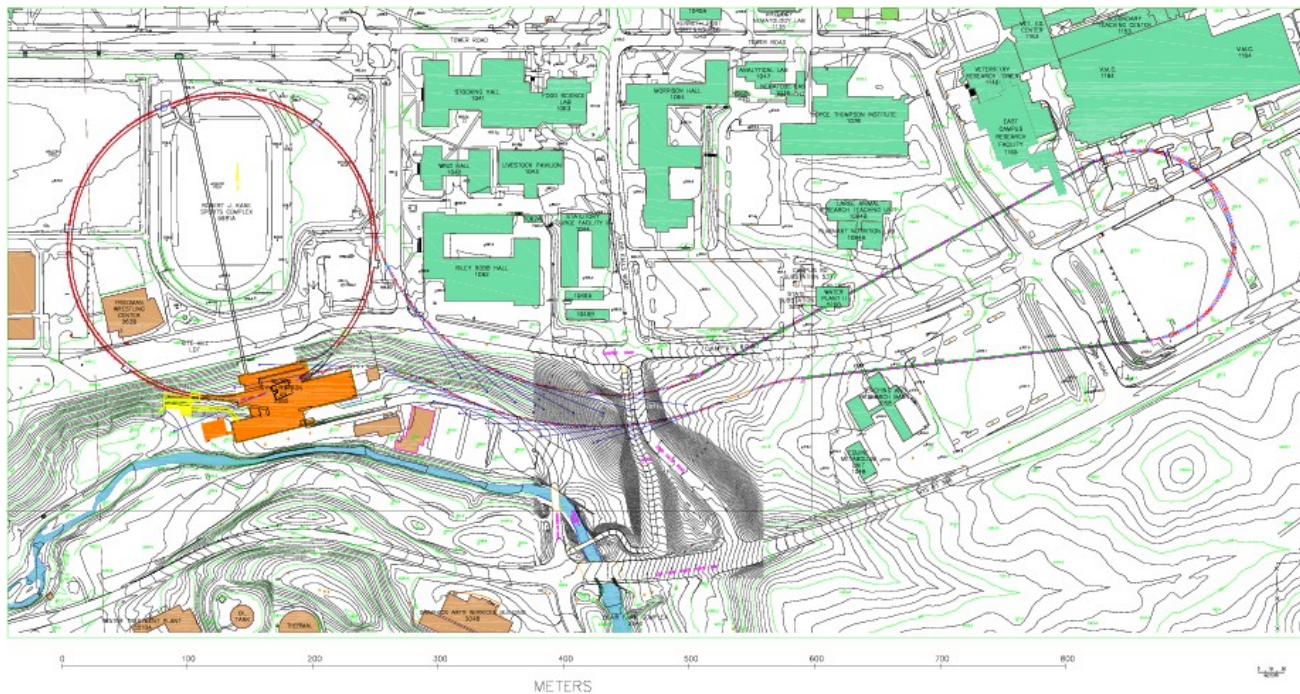




Progress in Beam-Breakup Calculations

Jim Crittenden
ERL@CESR Meeting
9 July 2009





▶ *We found a BMAD bug*

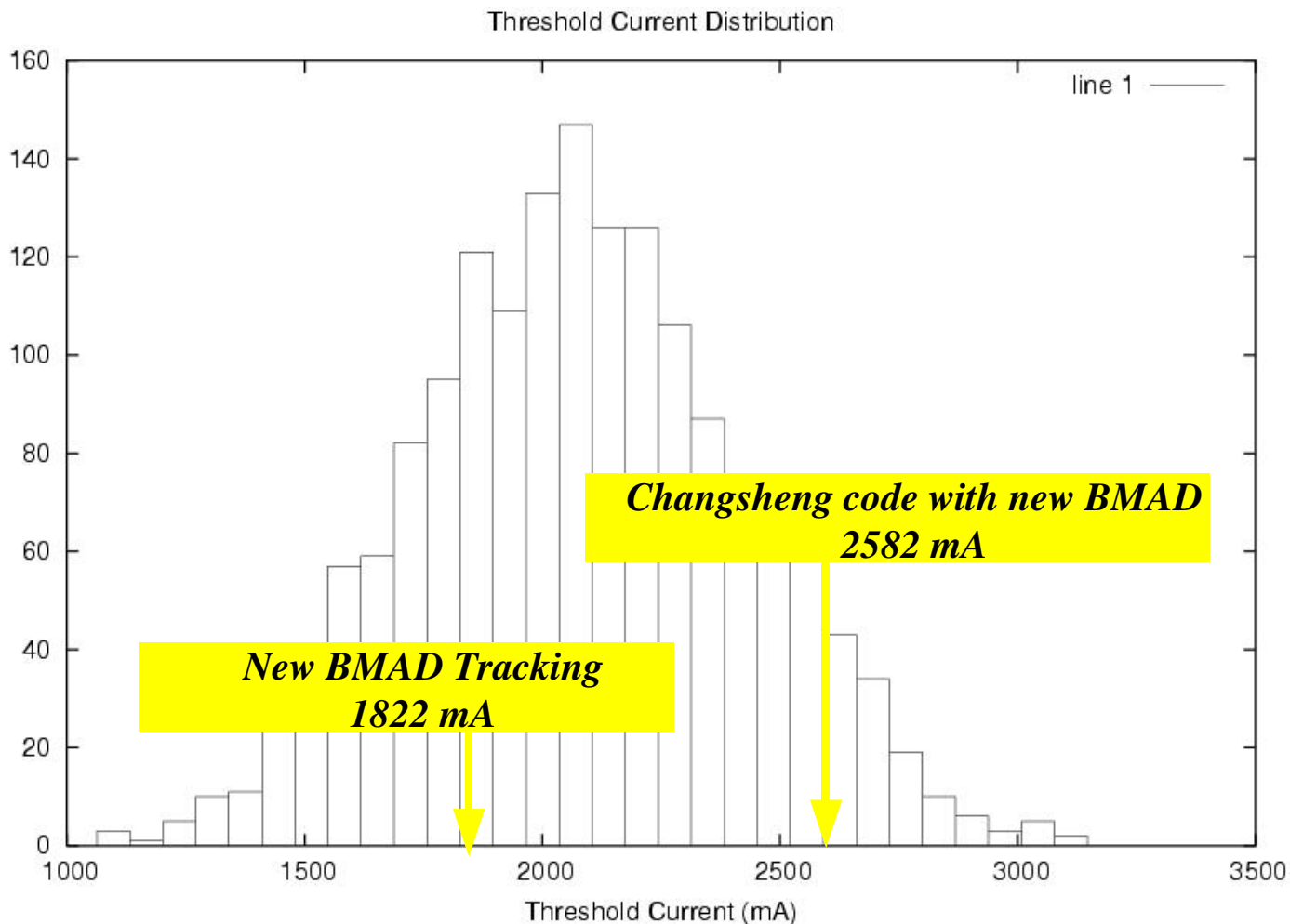
▶ *Now we can reproduce the calculations of ERL-0601*

➔ *With Changsheng's original code and the latest BMAD*

➔ *With the new BMAD tracking (DCS)*



2006 Lattice with PRST-AB 2007 HOMs and 10 Mhz frequency spread





All runs on processor LNX6166

No Coupling/ $\Delta_f=0/\sigma_f=0$

Coupling/ $\Delta_f=60\text{MHz}/\sigma_f=0$

Coupling/ $\Delta_f=60\text{MHz}/\sigma_f=10\text{MHz}$

CS Tracking

21.93 mA 3.5 min

87.0 mA 7.8 min

1978 mA 7.8 min

BMAD 2009

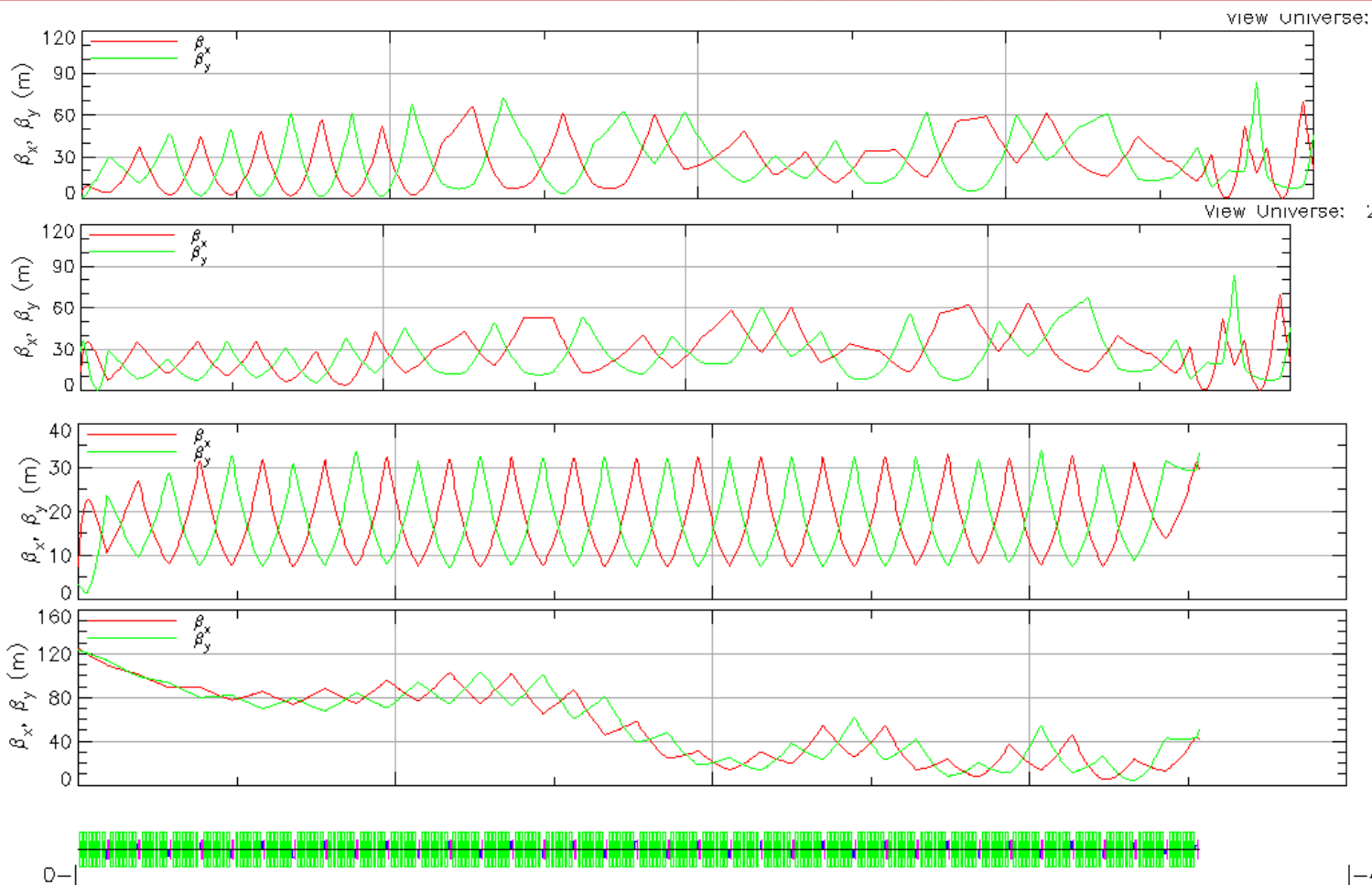
21.88 mA 17.2 min

96.7 mA 22.8

2888 mA 22.8 min



- ▶ ***New linac optics received from Chris Mayes***
- ▶ ***No improvement in threshold current so far.***
 - ➡ ***This is the first attempt, still much to learn***



CERN 7.4

First Optimization

Second Optimization