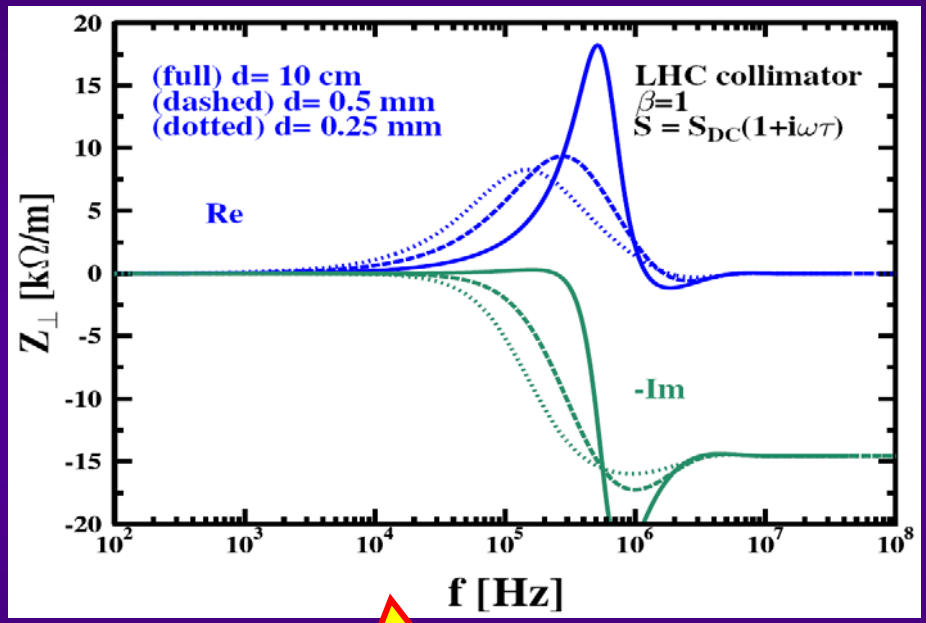
FOLLOW-UP OF THE TRANSVERSE RESISTIVE-WALL IMPEDANCE FOR THE LHC COLLIMATORS (AFTER EPAC06)

Elias Métral

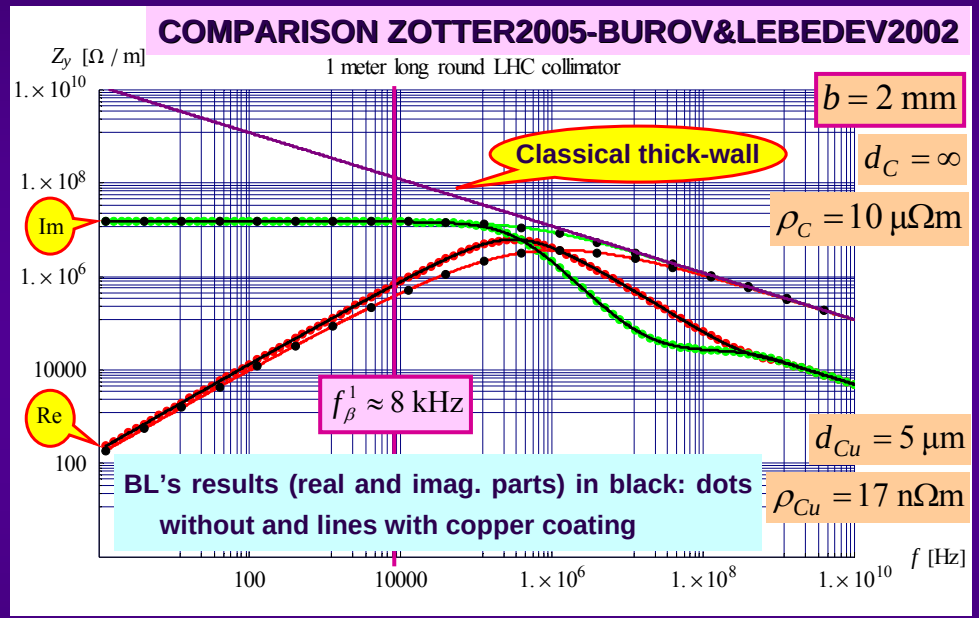
- **GSI workshop on 30-31/03/06 ⇒ "…Exchange and comparison of CERN/GSI impedance formulas/libraries (EM,RH)…" [http://care-hhh.web.cern.ch/care-hhh/Collective%20Effects-GSI-March-2006/summary2.doc]**
- **EPAC06 paper "Transverse Coupling Impedances from Field Matching in a Smooth Resistive Cylindrical Pipe for Arbitrary Beam Energies" by A. Al-Khateeb, R.W. Hasse, O. Boine-Frankenheim, Wafa M. Daqa, I. Hofmann ⇒ Sent to me by RH on Fri 23/06/2006**

GSI RESULT (2006)



d = 2.5 cm for the real LHC collimators

CERN RESULT (2005)



CONCLUSION

- Very different results between the 2 approaches !!!
- The new result from GSI exhibits 3 main differences
  - Both 0 real AND imaginary parts of the impedance at very low frequency
  - A constant imaginary part of the impedance at high frequency
  - A peak impedance more than 100 times smaller than ours

⇒ If it is true (one has to look at it in detail), this could have a major impact on the LHC project and in particular on the collimation project as the resistive-wall impedance would no longer be a problem !!!