

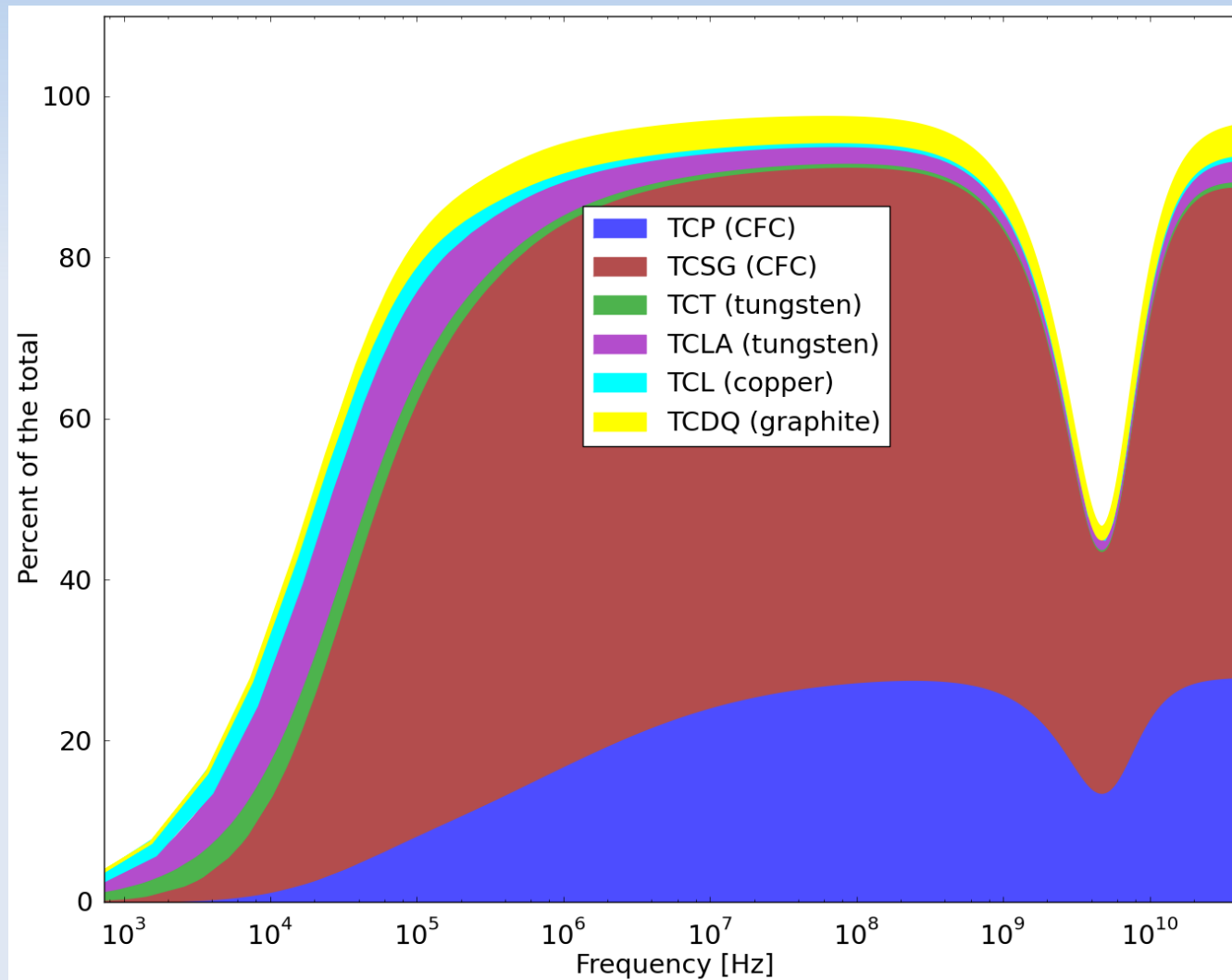
# Colimation Upgrade Specification Meeting #13

## HL LHC collimator scenarios: impedance considerations

N. Mounet, E. Métral and S. Redaelli

# Contribution of various collimator families to total impedance (1/2)

- Real part of the impedance: relative contribution of collimator families to total impedance model (vertical dipolar, 4 TeV, 2012 settings):

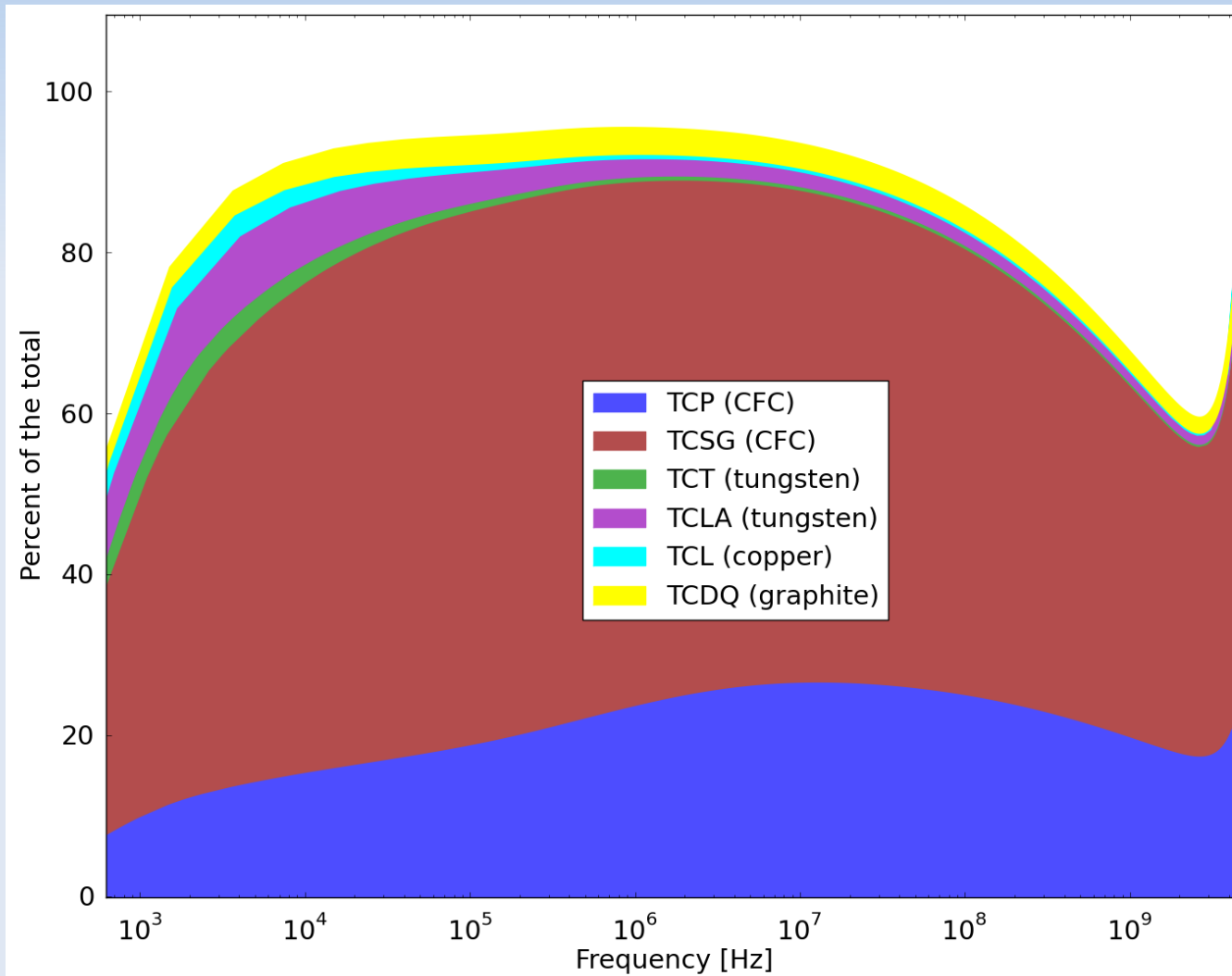


⇒ TCSG and TCP are largely dominant.

Note: this is similar in horizontal.

# Contribution of various collimator families to total impedance (2/2)

- **Imag. part** of the impedance: **relative contribution** of collimator families to total impedance model (vertical dipolar, 4 TeV, 2012 settings):



⇒ TCSG and TCP are largely dominant.

Note: this is similar in horizontal.

# Preliminary collimation scenarios to be studied from the impedance point of view

- 2 possible material configurations:
  - All collimators in the same material as now,
  - All collimators in the same material as now **except for secondaries (TCS) in metal** (molybdenum alloy) instead of carbon-reinforced carbon (CFC).
- 2 possible settings configurations:
  - **relaxed**: same half-gaps **in mm** as now: primaries (TCP) at  $6\sigma$  / TCS at  $8.6\sigma$ ,
  - **nominal**: TCS half-gaps smaller than now: TCP  $6\sigma$  / TCS  $7\sigma$ .
- Addition of **dispersion suppressor** collimators in copper (as the current TCL) → to be studied in detail (with several possible optics options) in a second step.
- Possible changes in **TCT / TCL** → to be studied in detail in a second step.