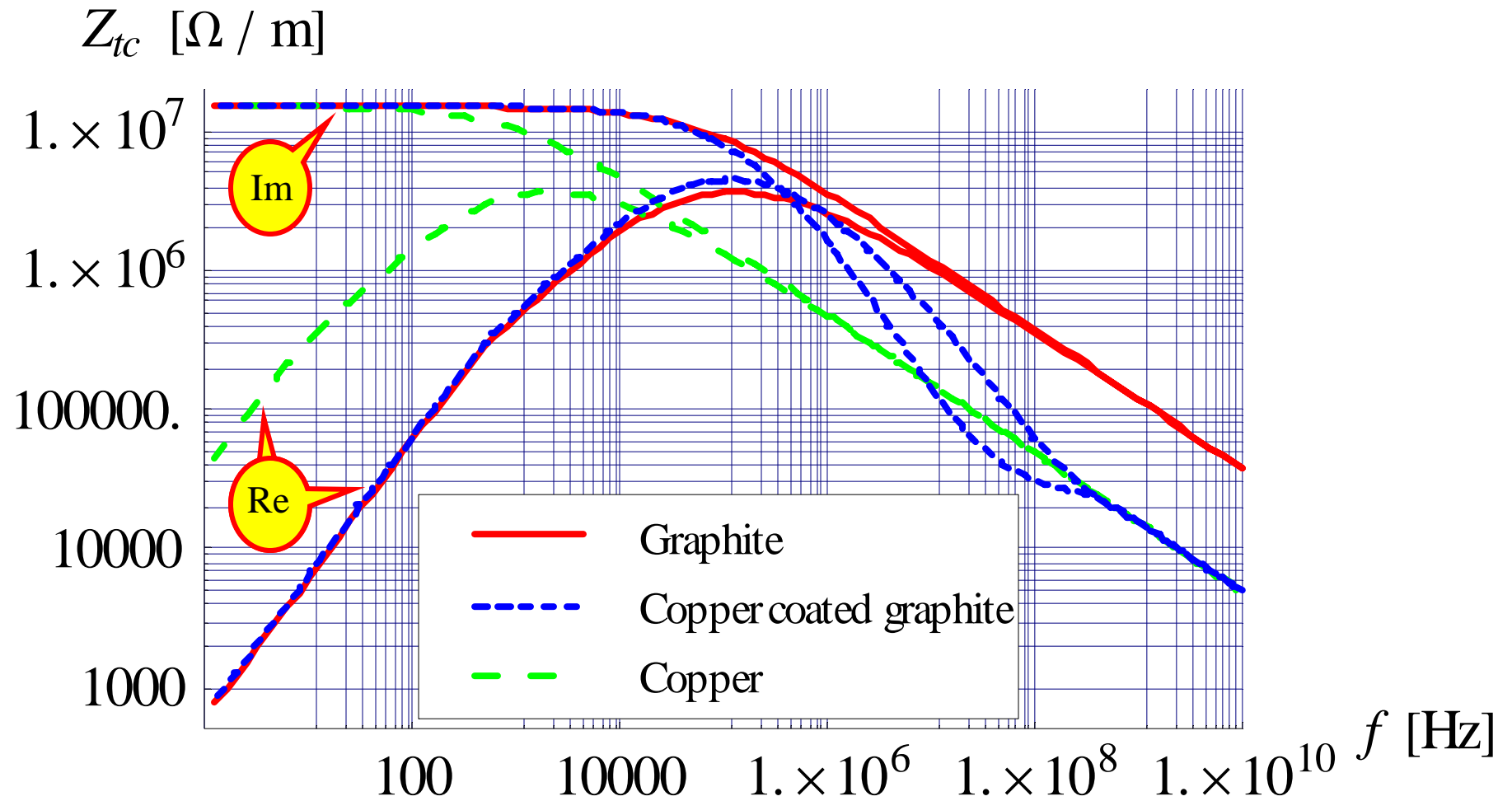


TRANSVERSE RW IMPEDANCE AND COUPLED-BUNCH TUNE SHIFT (AT 7 TeV) FOR THE CASE OF A CIRCULAR **1m LONG** COLLIMATOR WITH **HALF GAP 2mm** AND AT **AVERAGE BETA**

E. Métral

- ◆ Graphite (2.5 cm, 10  $\mu\Omega\text{m}$ ) with vacuum outside
- ◆ Copper (2.5 cm, 17 n $\Omega\text{m}$ ) with vacuum outside
- ◆ Graphite (2.5 cm, 10  $\mu\Omega\text{m}$ ) with vacuum outside and a copper coating (5  $\mu\text{m}$ , 17 n $\Omega\text{m}$ ) inside

# Transverse RW impedance

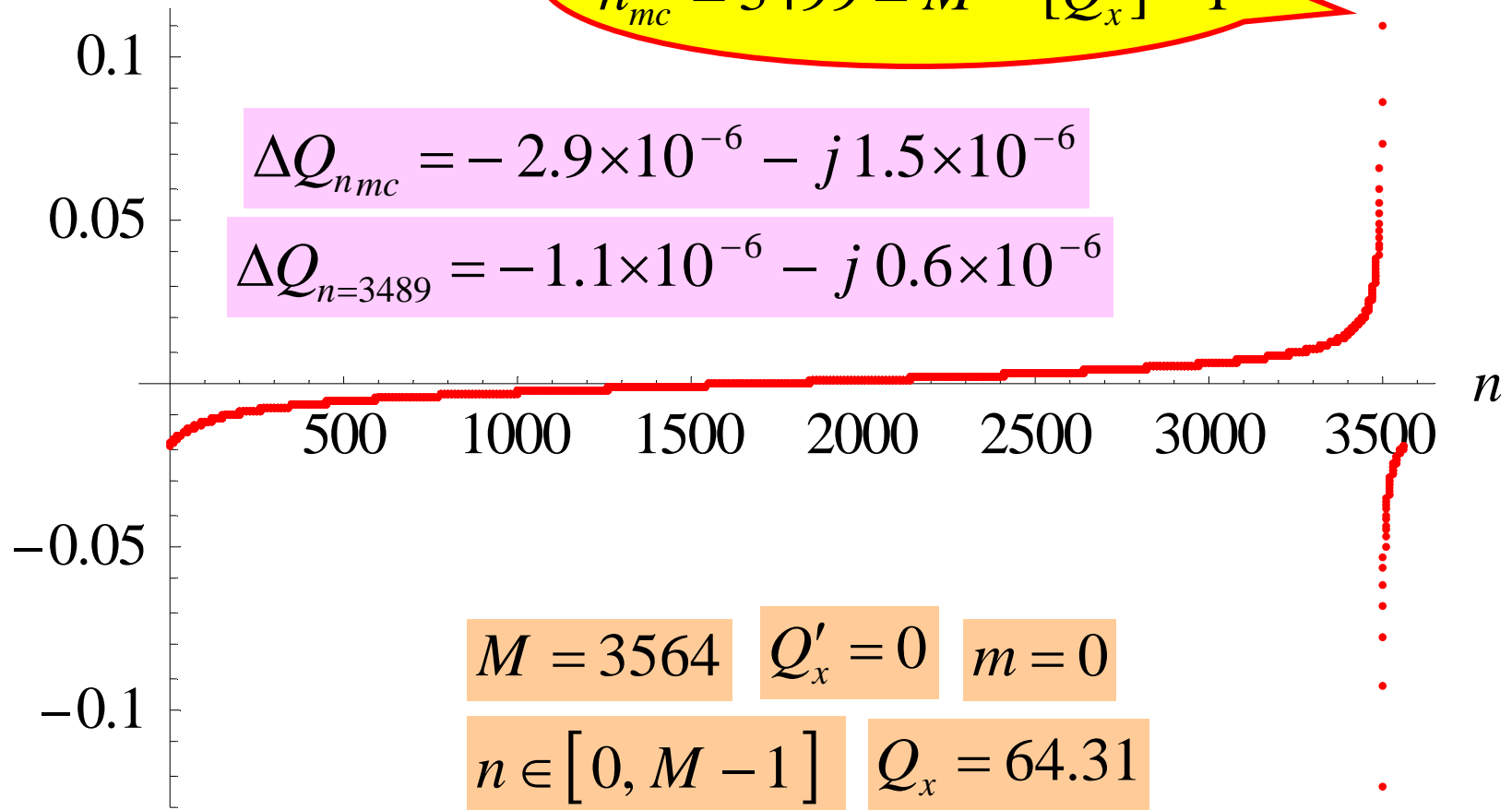


# Coupled-bunch instability growth-rates vs. coupled-bunch mode $n$

## COPPER

Instability growth-rate [ $s^{-1}$ ]

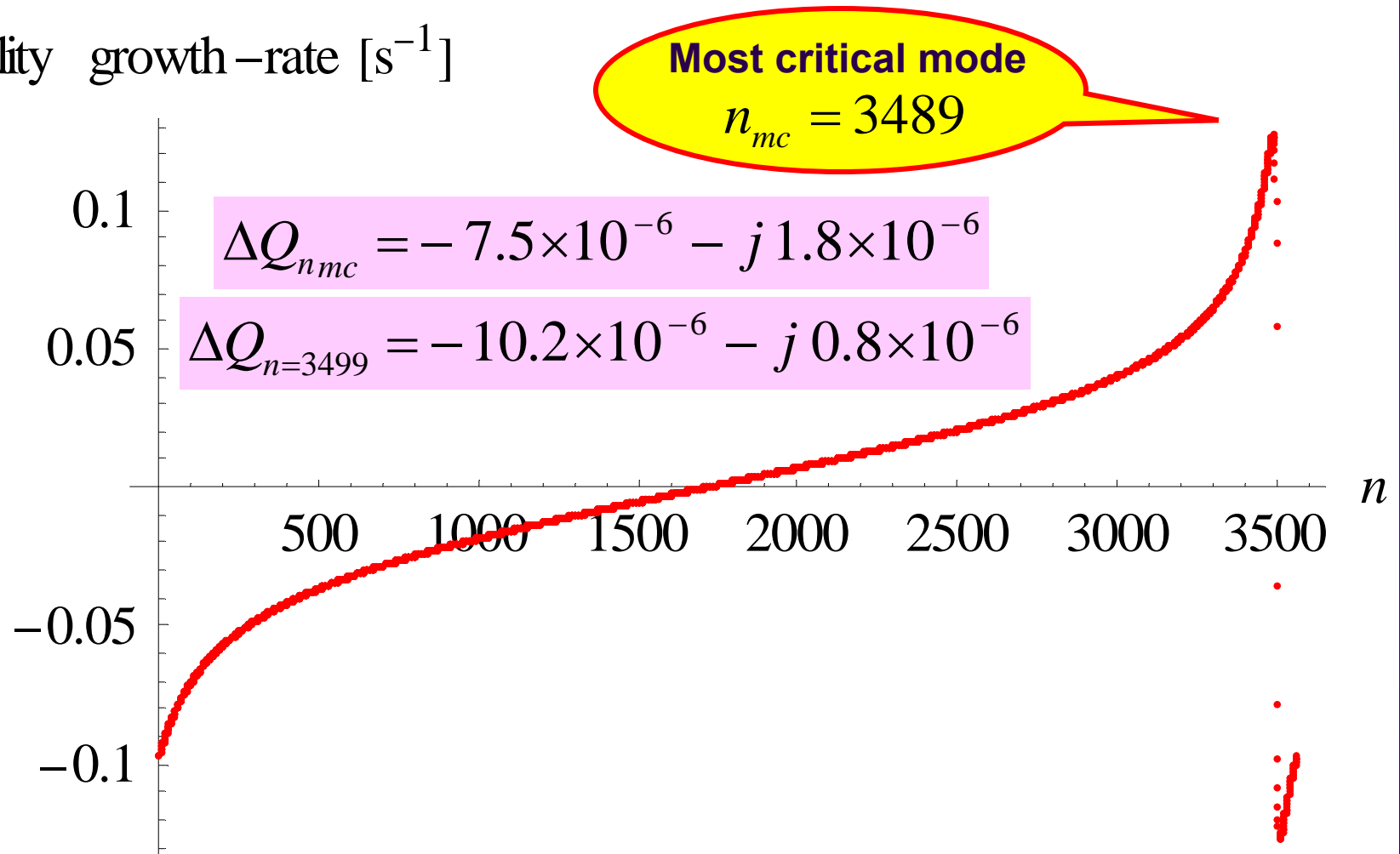
**Most critical mode**  
 $n_{mc} = 3499 = M - [Q_x] - 1$



# Coupled-bunch instability growth-rates vs. coupled-bunch mode $n$

## GRAPHITE

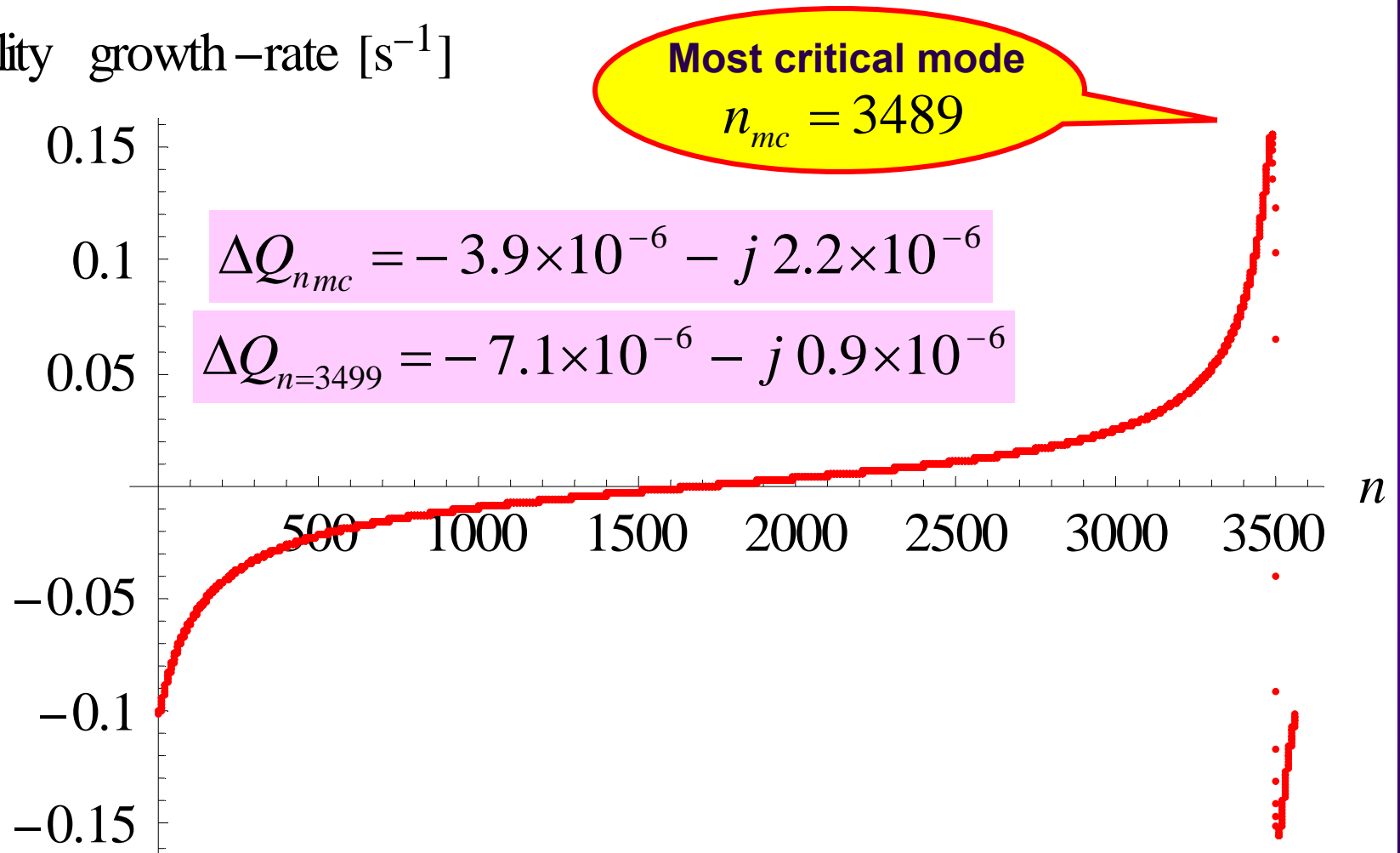
Instability growth-rate [ $s^{-1}$ ]



# Coupled-bunch instability growth-rates vs. coupled-bunch mode $n$

## COPPER COATED GRAPHITE

Instability growth-rate [ $s^{-1}$ ]



# Stability diagram with the 6 previous tune shifts

