

# Summary of day 1: WG2 multibunch effects

- **Longitudinal HOM:** all machines are concerned.
  - Temperature control of the frequencies, sometimes 2nd mobile tuner
  - HOM dampers
  - LFB: special consideration req'd for strong reactive detuning of Robinson mode
  - Phase and/or voltage modulation at multiple of fs; increased energy spread
  - Landau damping via bunch/bunch tune shift: via transient beam loading of fundamental or harmonic cavity
  - Saturation of longitudinal instabilities: why?
  - Is longitudinal stability necessary for photon beam stability?
- **Transverse HOM / Resistive wall :**
  - show up only once longitudinally stable.
  - TFB
  - control via chromaticity; lifetime impacted via dynamic or momentum aperture
  - HOM dampers
  - Chromaticity modulation at synchrotron frequency (Nakamura)
- **Ions/electron clouds**
  - ions not a limiting effect in 3rd gen. Machines; possibly observed at low level and may affect ultralow emittance/high intensity operation
  - observations at KEKB positron ring consistent with electron clouds