

Workshop Group Charges

Derun Li

Center for Beam Physics

Lawrence Berkeley National Laboratory

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Cockcroft Institute, UK

Workshop Charges I

- **Cavity design issues**
 - **Normal conducting versus superconducting**
 - **Single cell versus multi-cell cavity**
 - **HOM and LOM damping**
 - **Damping schemes**
 - **SOM and polarization**
 - Requirement and tolerance on mode separation
 - Polarization requirement from beam dynamics
 - **Power coupler**
 - **Tuners**
 - **Cavity-to-cavity alignment**
 - **Any tests can be done offline or online with beam?**



Workshop Charges II

- **Simulations**
 - **Cavity design must include damping and power coupler**
 - **Cavity-beam interaction**
 - **Validate simulations and damping schemes with measurements**
 - **Prototype**
 - **Multipactoring**
 - **How much margin we have in simulations**
 - **Beam dynamics**
 - **Can we taking advantage of radiation damping, coherent damping, Landau damping and long-transverse feedback system?**
 - **Beam spectrum for specific machines**
 - **LHC at CERN and APS at ANL**
 - **Other applications**



Workshop Charges III

- **Controls**
 - **State-of-the-art Low Level RF Control (LLRF) techniques**
 - Where we are now
 - What do we expect in near future
 - **Realistic requirements for specific machines**
 - Phase stability
 - Timing and synchronization
 - Impedance



Workshop Charges IV

- Issues with superconducting RF
 - Cryomodule design
 - Cryogenic plant
 - Heat load and dynamic load
 - Operation temperature
 - 4 K versus 2 K
 - Cost (\$/watt)
 - Alignment from warm to cold
 - Tuners
 - Couplers

