

Minutes May 17, 2007

Attendants: Mike Blaskiewicz, Yun Luo, Joanne Beebe-Wang, Mei Bai, Wolfram Fischer, Natalia Abreu, Steve Tepikian, Nikolay Malitsky, Christoph Montag

The main topic was the preparation of a beam experiment to test near-integer tunes with Au beam. Christoph presented the main goals of the experiment, and a proposed plan for the studies.

As a MAD calculation shows, setting the tunes to the desired values in the present Au72 ramp causes only minor optics distortions. It is therefore planned to clone that ramp for the studies, inject beam at the current Au working point, and walk it down to the desired near-integer tunes (one ring above the integer, the other one below). Once the new working points are reached at injection, orbit and optics measurements will be taken. It is understood that optics corrections will most likely not be available for the first APEX session; this is still being worked on by Yun. Once good lifetime is established we will attempt to study the resistive wall instability by setting the chromaticity to zero and injecting high-intensity bunches until the beam becomes unstable. The chromaticity will then be scanned, and the instability threshold will be measured as a function of chromaticity.

In later APEX sessions, we will try to ramp with near-integer tunes to study the sensitivity of orbits and optics to this kind of machine change. Since crossing transition may be difficult, we are planning to ramp only up to $\gamma \approx 20$; this should be sufficient for this purpose. Orbit and optics measurements and corrections will be repeated at this flattop energy. It is understood by everyone that this is a very ambitious goal that will require a significant amount of APEX time.

Mei reported that she will be investigating the possibility of increasing the phase advance per FODO cell to 87 degrees, since being close to 90 degrees may be beneficial for dynamic aperture. This will raise the transition energy to $\gamma_t \approx 24.5$, thus requiring a higher injection energy of $G\gamma = 48.5$.