RF Group Goals for FY2009

1. Continue to maintain the excellent performance and availability of the APS RF systems
    a. Implement full power SLED rf test and measurement utilizing L6 rf system.
    b. Setup an enclosure to house linac/par vacuum-grade waveguide components.
    c. Improve and optimize linac LLRF envelope detector modules in support of operation.
    d. Upgrade the interlock systems at RF5, Sectors 36 and 37 mezzanine rf equipment racks to a PLC-based system.
    e. Complete commissioning of the 2-MW, 100 kV DC water load and make it fully operational for test and troubleshooting of the rf high voltage systems.
    f. Continue utilizing RF Test Stand for testing and rf conditioning of the APS Booster and Storage Ring power coupler, tuner, and other rf components.
    g. Pursue other upgrades, new phase shifter board, a tetrode tester, a Ti-coating setup, re-tuning of Philips klystron to APS operating frequency.
    h. Complete the re-organization of the RF Group technical documentation.

2. Improve RF systems performance
    a. Continue supporting multi-bunch instabilities studies to understand beam/cavity interaction.
    b. Fabricate a new style prototype higher-order- modes damper and characterize its performance.
    c. Continue performing studies and analysis to reduce or eliminate rf noise and jitter effects on stored beam.
    d. Design an FPGA-based comb filter system for HOM detection.
    e. Conduct feasibility studies of a new linac modulator system.
    f. Demonstrate improved amplitude stability of new linear S-band klystron driver amplifier.

3. Develop new ideas to support APS near- and far-term initiatives:
    a. Support SPX Project.
    b. Explore viable RF systems options in support of the APS upgrade, such as development of a solid-state amplifier. Complete the design and construction of a prototype 352-MHz/1kW CW rf amplifier board.
    c. Conduct R&D related to SRF technology.
    d. Explore new rf systems development through SBIR.

4. Support laboratory initiatives and provide technical support to other projects. Strengthen collaborations
    a. Support FRIB accelerator related activities.
    b. Support Argonne Accelerator Institute.
    c. Continue collaboration with JLab on SRF deflecting cavities development.
    d. Establish a working collaboration with Fermi and JLab on modern LLRF system modeling and development.
    e. Establish collaboration with KEK-PF on SRF activities.
    f. Collaborate with ESRF on novel high-power 352 MHz CW solid-state amplifier R&D.

5. Develop an outstanding technical workforce in accelerator RF technology
    a. Develop core competencies in modern LLRF and controls techniques utilizing LDRD program.
    b. Develop core competencies in SRF cavity design and analysis.
    c. Promote and encourage cross-group and cross-division collaboration.
    d. Assign realistic and task-specific project to staff to help them in realizing their career goals.

6. Foster a safe and secure working environment
    a. Promote safe work practices by integrating safety into all aspects of daily work.
    b. Commend and reward safe work practices.