**USPAS 2016 at UT Austin Accelerator Physics with Maple. U. wienands, SLAC and E. Marin Lacoma, CERN.**

File USPAS 2016 Script 2nd Ed.pdf is the updated script of the course. Note that it has bookmarks for each section. It also has the white pages that should allow for printing with each section starting on an odd page number.

The Maple worksheets.zip file is the zipped folder of all worksheets we used.

The Lattice package.zip file is a zipped folder with the latest version of Lattice (1.02 10-Feb-2016). It has minor fixes compared to the version used during the course. The users guide is the same as included in the 2nd edition of the course script.

**Log of changes for 2nd revised edition of script:**

Section Linear Accelerators: slight change of wording to make things clearer

Section Chromaticity: changed sign on k2\*eta\*delta term to make it consistent with common usage (positive k2: focusing)

Section Hamiltonian Description: Fixed eqs. (1.3) and (1.4). This includes the sign error.

Section Beam Loading: Added plot of beam on 1st page. Added Alessini's slide on couplers shown during the lecture. Added the phasor plots shown during the lecture. Added phasor diagram for cavity voltage shown in the lecture. Rewrote algebra beginning at eq. (1.3.25) for clarification. Added the summary of equations at the end.

Section Synchrotron Radiation: Fixed eq. (1.31) (spurious factor c). Explained that A\_avg^2 is the 2-sigma value of the beam width.

Section Undulators and FELs: Fixed eq (1.4) (factor c missing). Cleaned up confusing notation for rest masses (now all m\_0, which is mc^2). Made usage of K for undulator parameter consistent throughout the section.

Section Collective Effects: Added solution to eq. (1.3.32).

Inserted ATF Optimization slides as Appendix A.

Updated Lattice package manual and moved to Appendix B.