

Minutes of RESULTS, PITZ Physics Seminar, 05.09.2013

Project: PITZ

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Agenda:

- 1) Prach: ASTRA 50um beamlet tracking & phase space reconstruction.
- 2) Prach: Study of hypothetical PITZ THz FEL project
- 3) Georgios: Linear and nonlinear space charge effects on tomography reconstruction.
- 4) AOB

Results:

- 1) The difference in emittance between cases with- and without space charge is < 4%
- 2) 2.0mm.mrad at 4nC – too optimistic.
- 3) X-Plane: (ca. 1mm.mrad)
No space case: 19% difference in emittance
Space charge included: difference < 3% for both linear and nonlinear SC, linear does better (!)
Y-Plane: (ASTRA simulated emittance higher – ca. 3mm.mrad due to quads strong focusing)
No space case: 8% difference in emittance
Space charge included: difference < 3% for both linear and nonlinear SC.
The V-code is (?) good enough for SC corrections. It might not be as good as

Next steps:

What is to be done?	By whom?	Until when?	Done on
1: Phase space slopes do not match-> check the procedure	Prach		
1: Compare projections from beamlets with those obtained from full-beam phase space	Prach		
2: What emittance is required for SASE	???		
3: Consider increase step # in ASTRA	Georgios		
3: Comprehensive comparison ASTRA & V-code needed (in sense how well do they deal with SC effects). Is the V-code really good enough?	Georgios	Beginning of November	

Protocol prepared by M. Otevre, 05.09.2013