

- We want to simulate the effect of transient beam loading when having a passive 3rd order harmonic cavity and a fill pattern with non-uniform charge distribution.
- Preferable it should be possible to both include a passive harmonic cavity and active main cavities with slow feedback to keep the average RF voltage constant.
- Required input: Cavity parameters and arbitrary fill pattern
- Required output: Bunch profiles of every bunch. The profile is required to calculate the effect on lifetime so it is not only sufficient with centroid position and bunch length.
- Diamond-II has 934 bunches, which might make the execution time challenging
- We want to compare to the code mbtrack that we are currently using

Example of result from mbtrack:

