MRI Simulator Notes

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Tasks
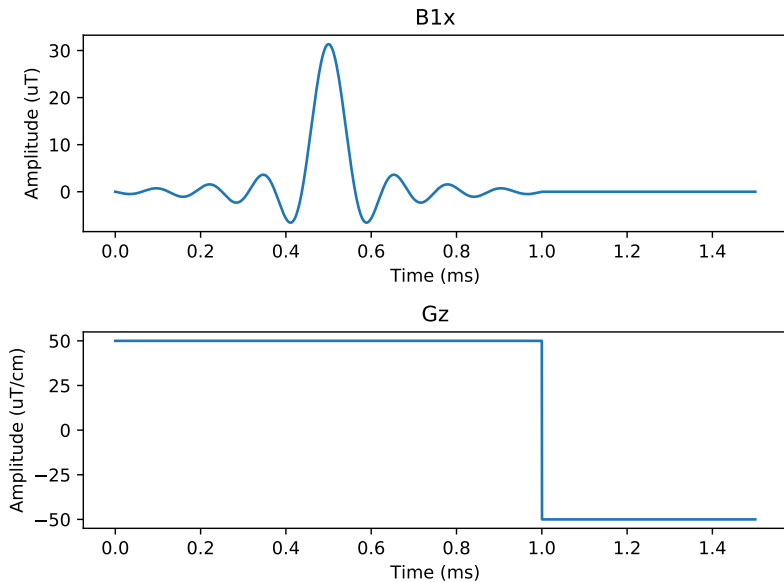
- I simulated selective excitation of a slice in the z direction.
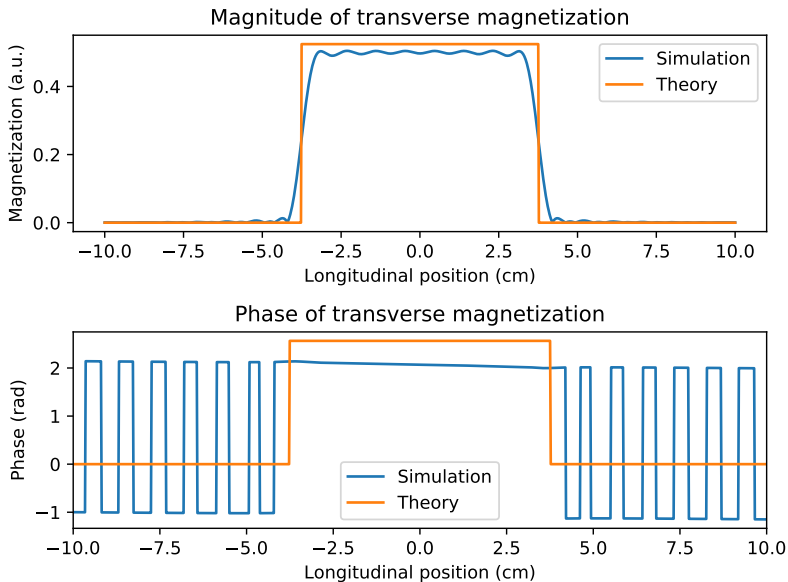
Selective excitation of a slice

Summary

- I distributed 1000 ems evenly-spaced from -10 cm to 10 cm.
- I simulated selective slice excitation with more realistic parameters, e.g. using the actual gyromagnetic ratio of H-1.
- I used a Gaussian-windowed sinc waveform for the RF pulse and a constant z gradient with a refocusing lobe.
- I debugged until the simulation and theory profiles agreed.

Pulse sequence

Transverse magnetization profile

Magnitude of transverse magnetization

Phase of transverse magnetization

Comments

- ▶ The profile looks as expected in the excited slice.
- ▶ I'm not sure what's going on with the phase outside of the excited slice.
- ▶ I take these results as evidence that the excitation and precession routines are working as expected.