

Magnetic resonance I.

Semester 2016/17 spring
(exam questions, vMay 18, 2017)

1. Basics of magnetic resonance (foundations, types, spectroscopic methods).
2. Classical model of magnetic relaxation.
3. Bloch equations (solutions for small excitations and pulses; Kramers–Kronig relations).
4. Pulse techniques (FID, spin-echo, pulse sequences).
5. Atomic theory of absorption and dispersion.
6. Dipolar–dipolar interaction (method of moments).
7. Hyperfine interactions: chemical shift (quenching of orbital momentum etc.).
8. MRI fundamentals.