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JÜLICH
FORSCHUNGSZENTRUM

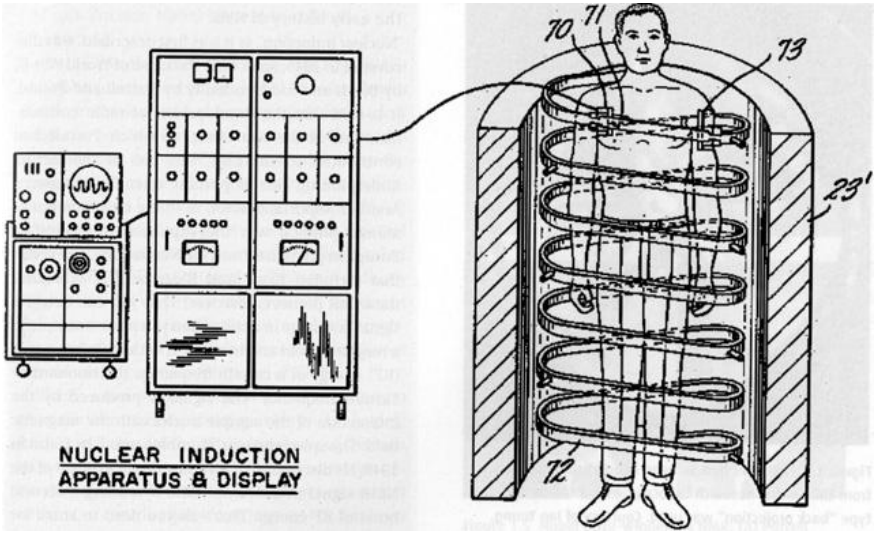
Georgian German Science Bridge

Mikheil Kelenjeridze

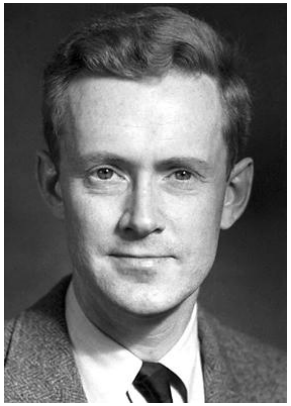
20.01.2013

MRT brief history

Raymond Damadian's first patent in MRT

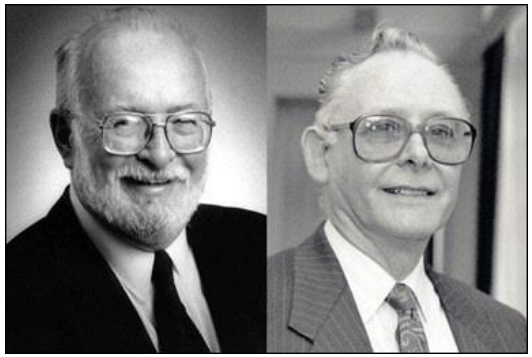


Felix Bloch
(1905-1983)



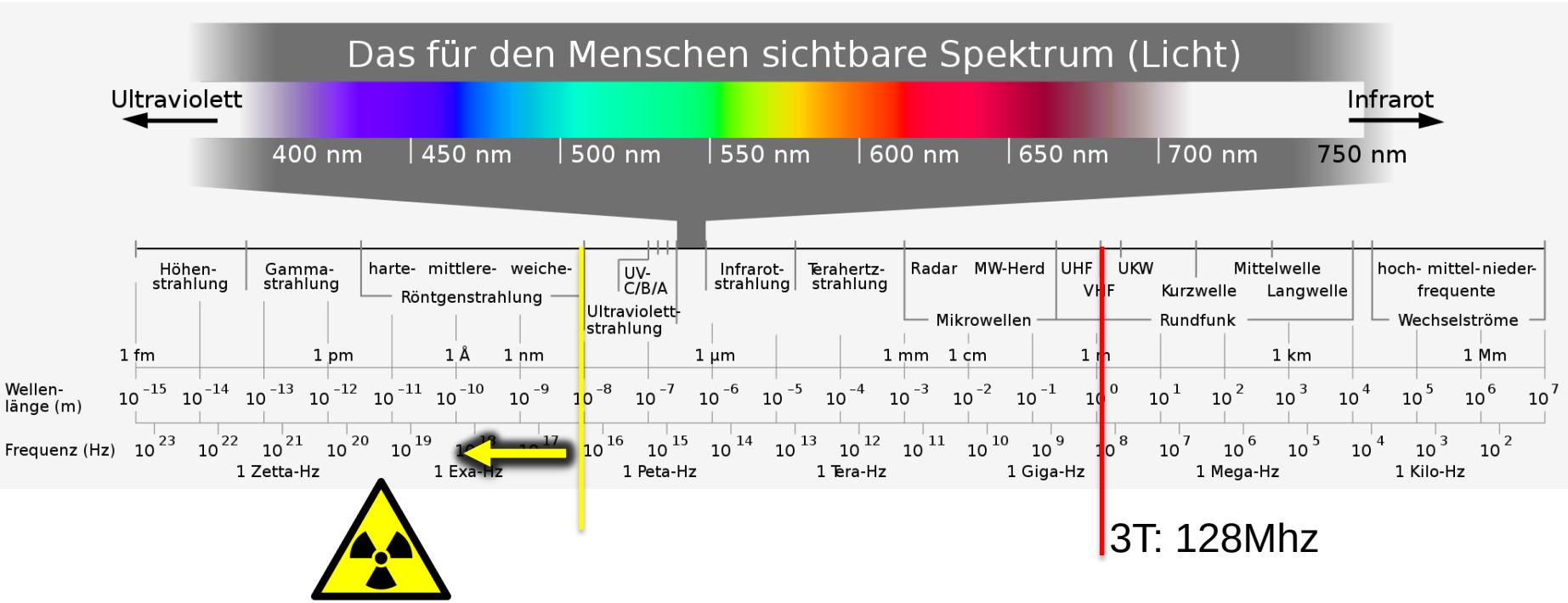
Edward Purcell

Nobeliants



Paul Lauterbur and Sir Peter Mansfield

Magnetic Resonance Tomography is different from Computer Tomography

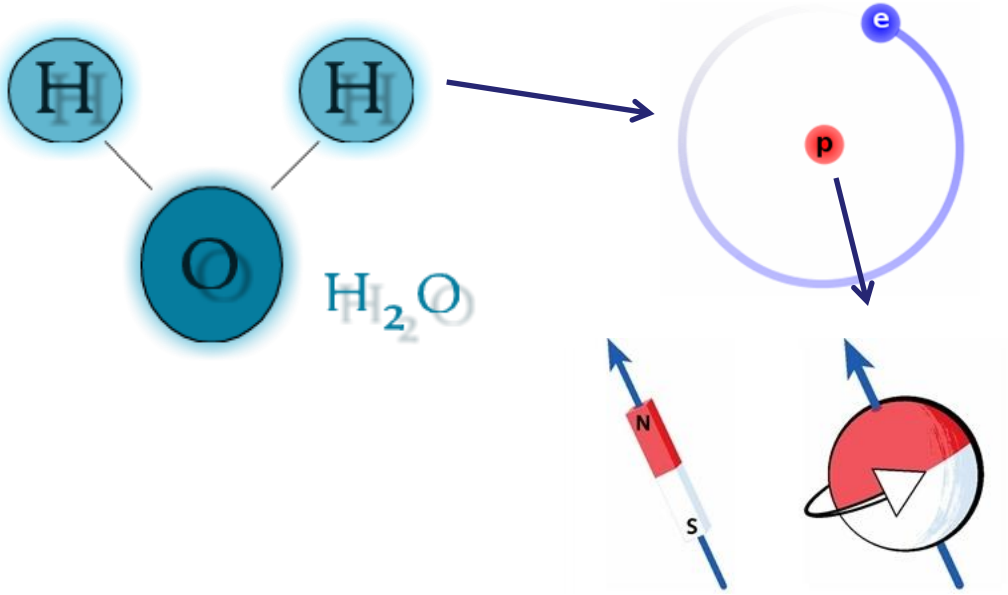


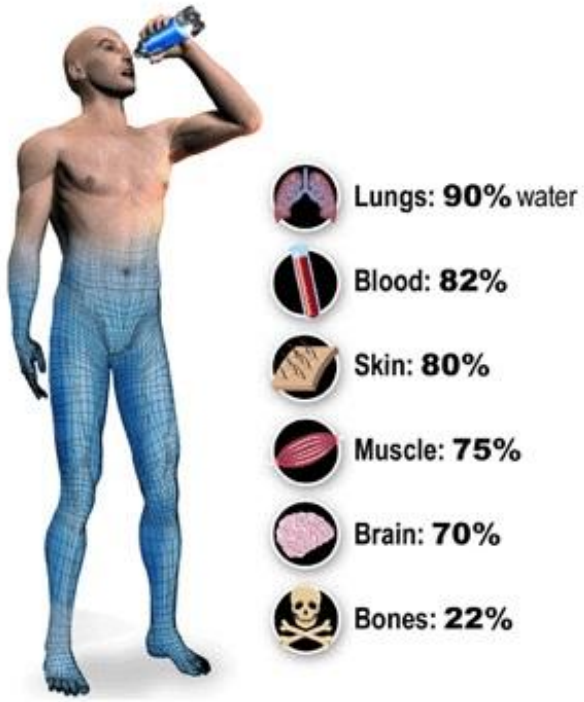
- MRT doesn't use X-Rays

MRT working principle

Our body consists approximately 60 – 70% Water

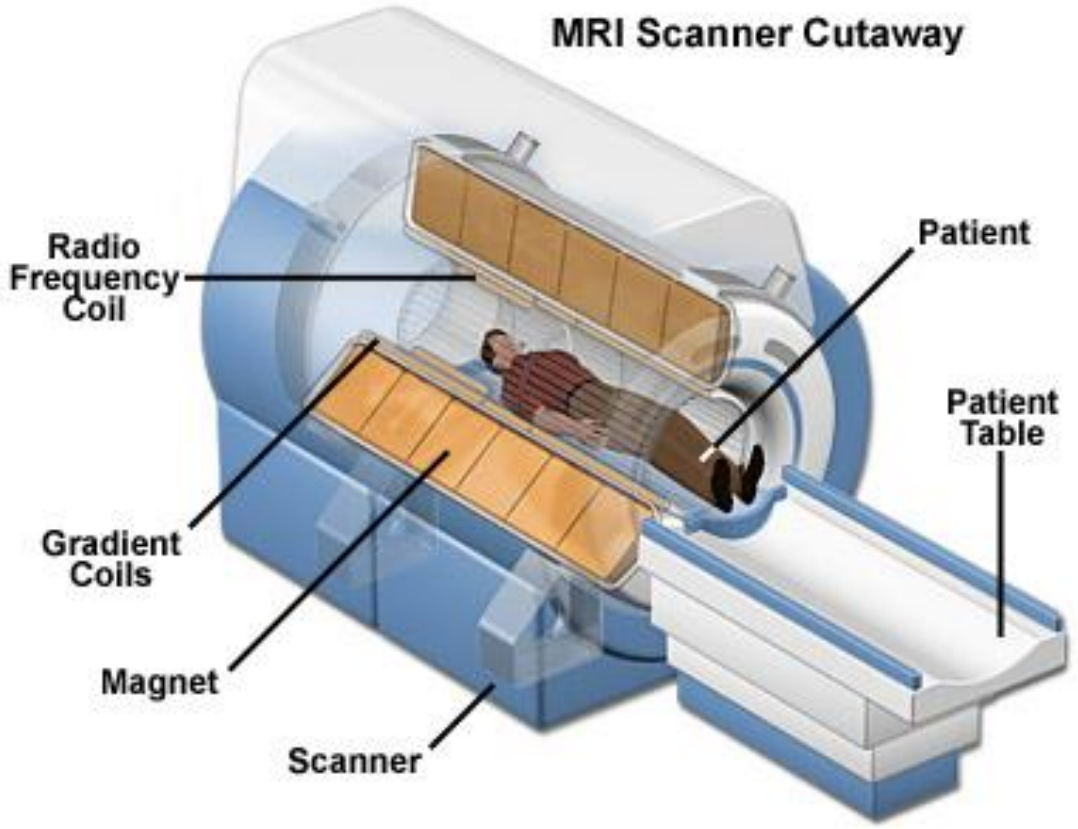
Water in itself includes Hydrogen which has highest sensitivity to magnetic resonance





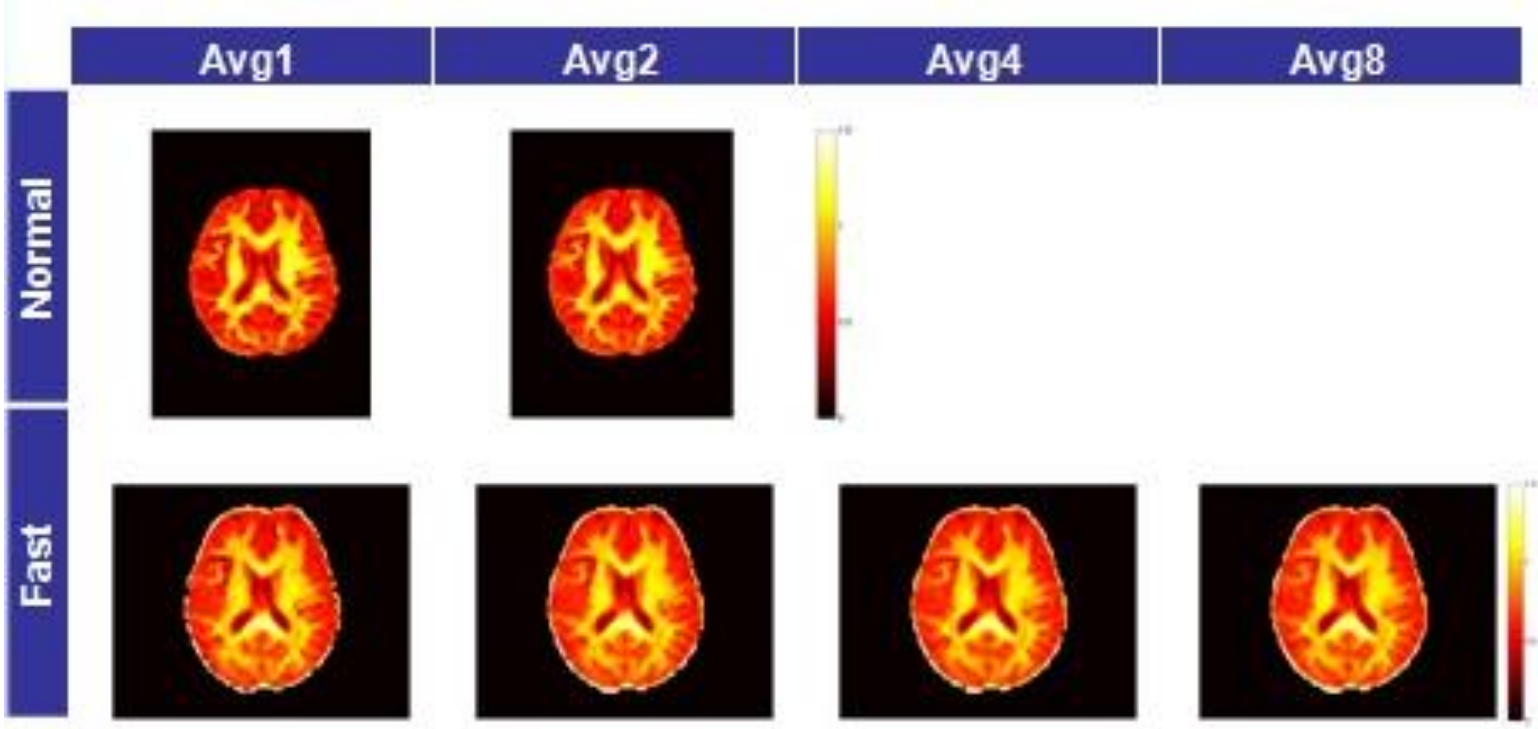
MRT working principle

Proton excitement and relaxation with special magnets and coils we get additional magnetizations which also are captured by coils (antennas) and after electrical and mathematical processing of this information we get visual images.



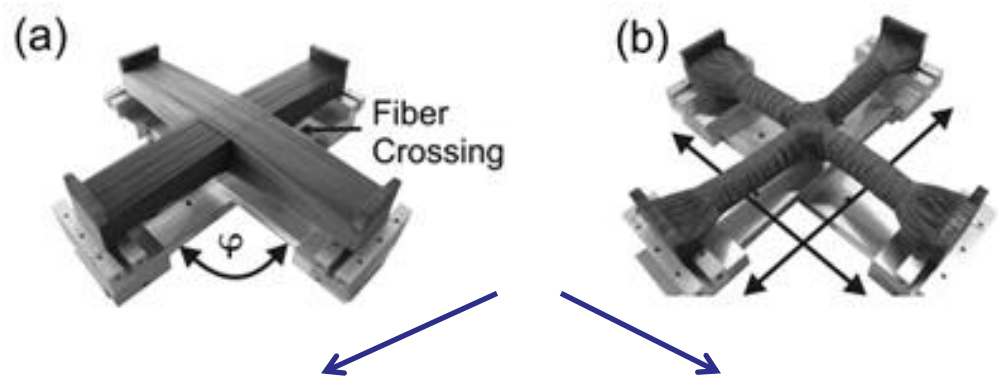
Researches on Magnetic Resonance Tomography

- Get more contrast
- Decrease measuring time



Using phantoms in MRT

- Phantom is a concrete model of human brain part. It consists tight petty winded fiber (8mcm diameter approximately), which then is placed in water reservoir. These small fibers are similar to brain axons.



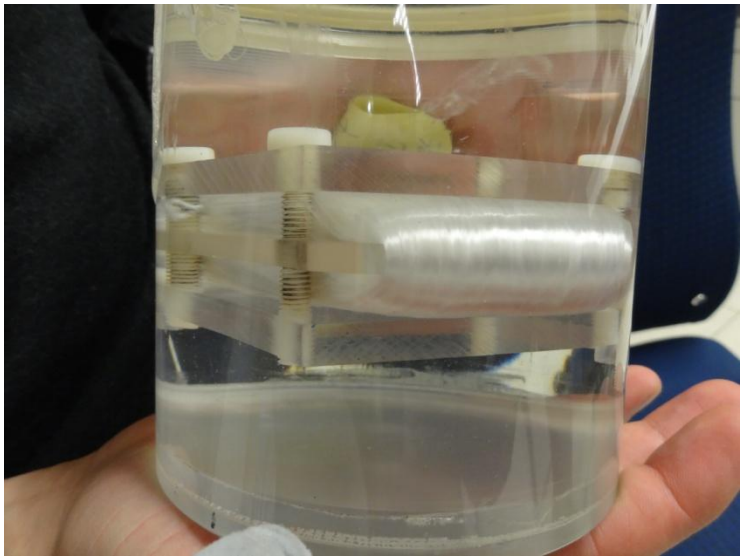
How well tomography working

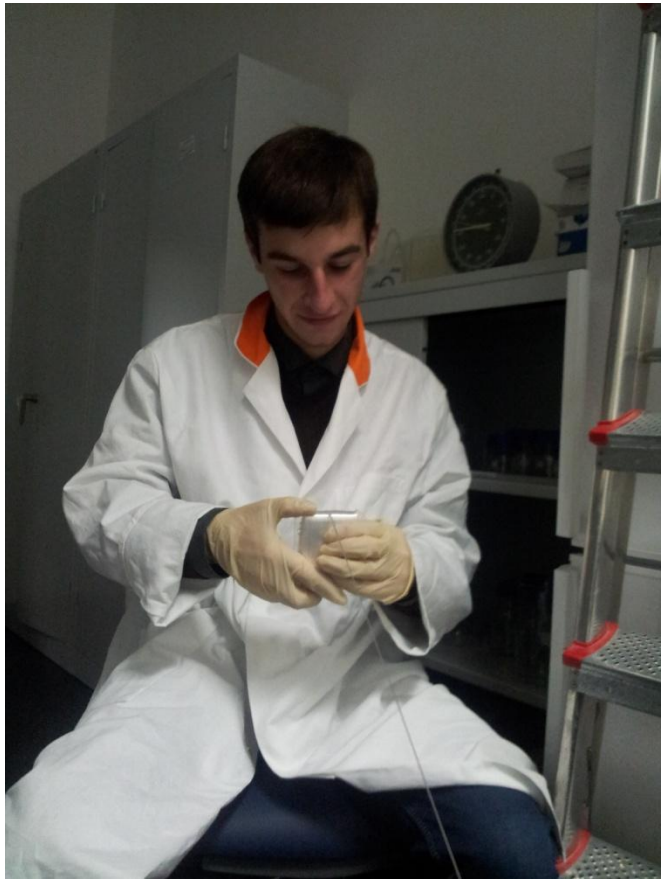
How good is to use new parameter for analysis

My experiences with phantoms

- **11.2012**

“Parallel phantom”

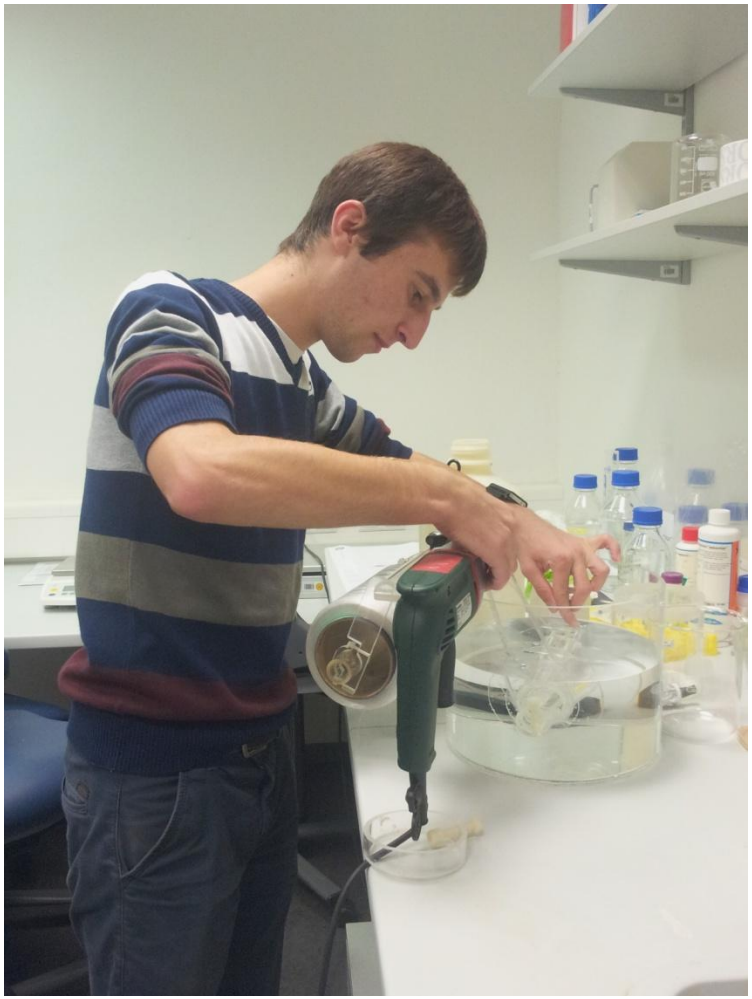




My experiences with phantoms

- **09.2013**

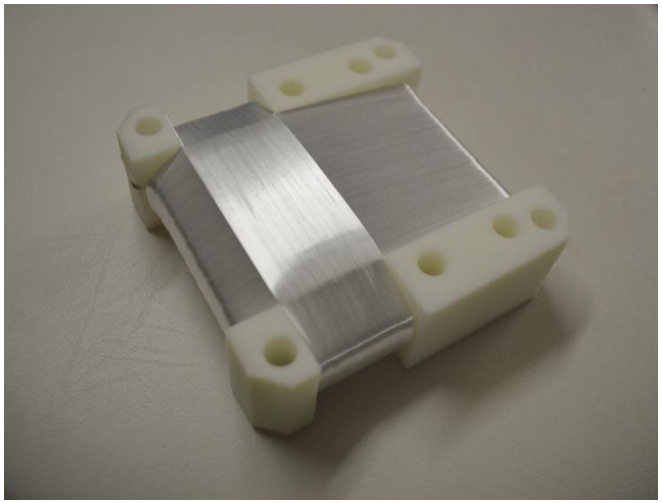
“Cylinder phantom”



My experiences with phantoms

- **12.2013**

“Crossing phantoms”



Acknowledgments:

- Prof. dr. N. Jon Shah, Dr. Farida Grinberg, Ezequiel Farrher
- Prof. Ketevan Kotetishvili, Dr. Andro Kacharava, Prof. Akaki Gigineishvili

Thank You For Your Attentions