## Phantoms – PSAG$^{(v)}$

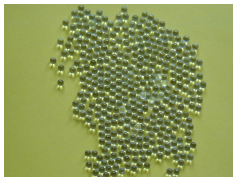
**Milan Hájek, Daniel Jirák, Vít Herynek**
IKEM, Prague

Requirements for new types of phantoms

- Different textures
- Simple preparation and stability
- Low cost
- Sufficient contrast and resolution
- No air bubless

## We tested: agar + spheres

- Glass spheres of various diameter
- Polystyrene spheres of various diametr



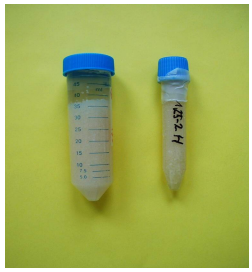
## Phantoms – PSAG$^{(v)}$

- Different textures
- Simple preparation and stability
- Low cost
- Sufficient contrast and resolution
- No air bubless (?)

## Phantoms PSAG$^{(v)}$

Polystyrene+agar (various diameter)

- **4% agar**
- **PS spheres of different diameter**
- **Tubes of different diameter**

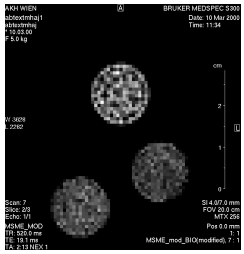


## Phantoms – PSAG $^{(0.2\text{-}3)}$

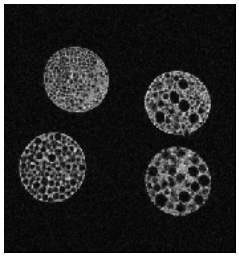
- **Different textures can be reached by the choice of sphreres (∅ 0.1 – 4 mm)**
- **Sufficient contrast and changed by the agar contamination ($DyCl_3$)**
- **T2: 40- 240 ms ms**

- ***Simple preparation and stability***
- ***Low cost***
- ***No air bubless***

3T



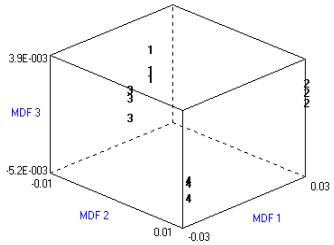
4.7T



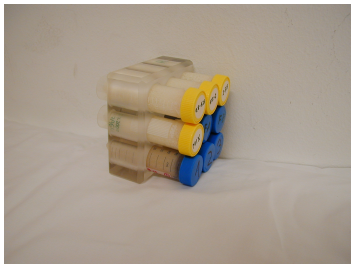
## Basic TA Parameters

| TA parameters | Spheres (0.8-1.25) | Spheres (1.25-2.0) | Spheres (2.0-3.15) | Random Spheres |
|---|---|---|---|---|
| **Skewness** | 0.307 | 0.874 | 0.914 | 0.549 |
| **Grad. Skewness** | 0.675 | 0.843 | 1.336 | 0.913 |
| **Contrast** | 223.9 | 198.5 | 128.2 | 171.8 |

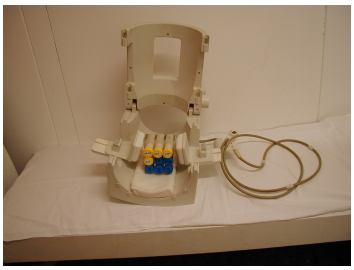
## TA Parameters – Separation of Gels




## Samples for a Whole body Imager



## Vision Head Coil



## Phantoms – PSAG(v)

**There is a lot of data**

- **Images and phantoms were tested in:**
- Prague: – 1.5T Vision and 4.7 T Biospec
- Vienna: 3T Medspec
- Heidelberg: 1.5 T Vision
- Dundee: 1.5T Symphony
- NIH: V.Herynek – T1 a T2 relaxometer

## Next steps

- **We prepared 6 sets of phantoms which can be used for answering these questions**
- **Why we need phantoms?**
  - **Experiments to differ the texture -MODELS**
  - **Quality Assurance –of texture or of imagers?**
  - **Do we really need Phantoms for the simultaneos measurement with the tissue?**
- **MS of the paper**