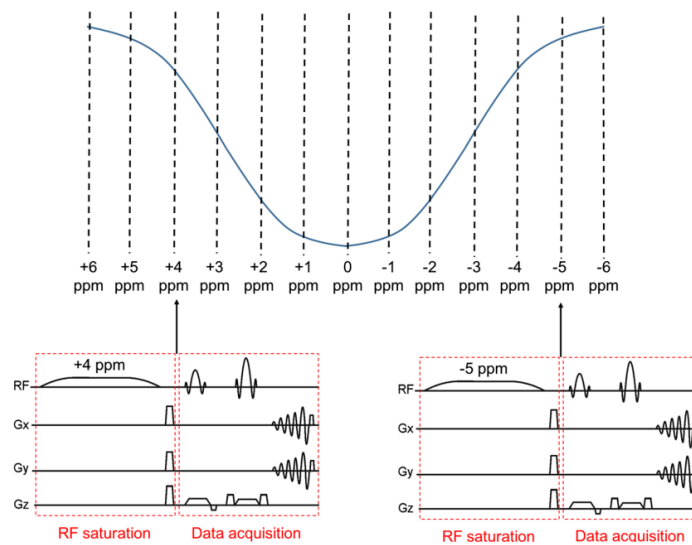


## Master Thesis: Radial CEST Imaging Sequence



### **Overview:**

CEST MRI (Chemical Exchange Saturation Transfer Magnetic Resonance Imaging) is a powerful imaging technique that allows the detection of metabolites in tissues by exploiting their chemical exchange properties. In CEST MRI, a radiofrequency pulse is used to saturate the protons of a specific chemical group (e.g., amide or hydroxyl) in the metabolites of interest. This saturation then transfers to the water protons in the surrounding tissue via chemical exchange, resulting in a reduction in the signal intensity of the water protons in the MRI image. This allows for the detection and quantification of metabolites that are otherwise difficult to image using traditional methods.

To improve imaging protocols in our CEST project, in this master thesis CEST saturation should be implemented in an existing radial sequence using the IDEA framework.

### **Specific tasks:**

- Literature review
- Understanding the existing code
- Implementation of a radial CEST sequence
- Phantom and in vivo MRI measurements

### **Recommended Knowledge:**

- Programming basics in C or C++ (and willingness to improve)
- Interest in sequence programming
- Basic git workflow

### **Contact:**

Markus Huemer  
huemer@tugraz.at

Phillip Schaten  
philip.schaten@tugraz.at