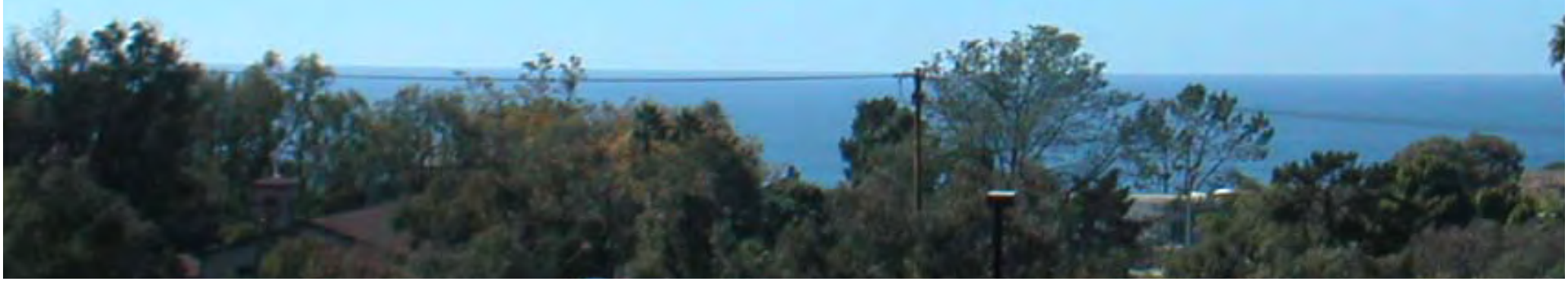
***November 12 – 13, 2015***

# *Ultrahigh Field NMR and MRI: Science at the Crossroads*

***Biotechnology Resource Center for NMR Molecular Imaging of Proteins***

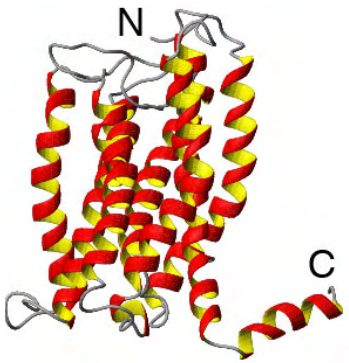
***P41 EB002031***

*Department of Chemistry and Biochemistry*
*University of California, San Diego*

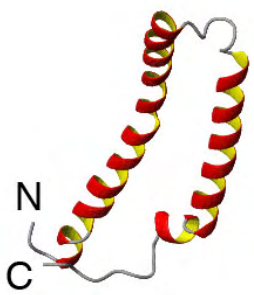


# *Membrane protein structures determined in phospholipid bilayers.*

CXCR1

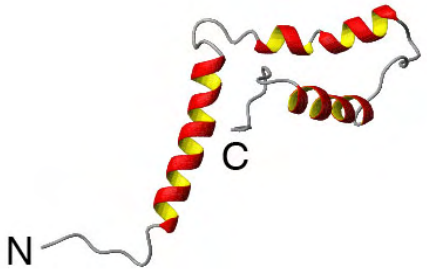



MerF




p7

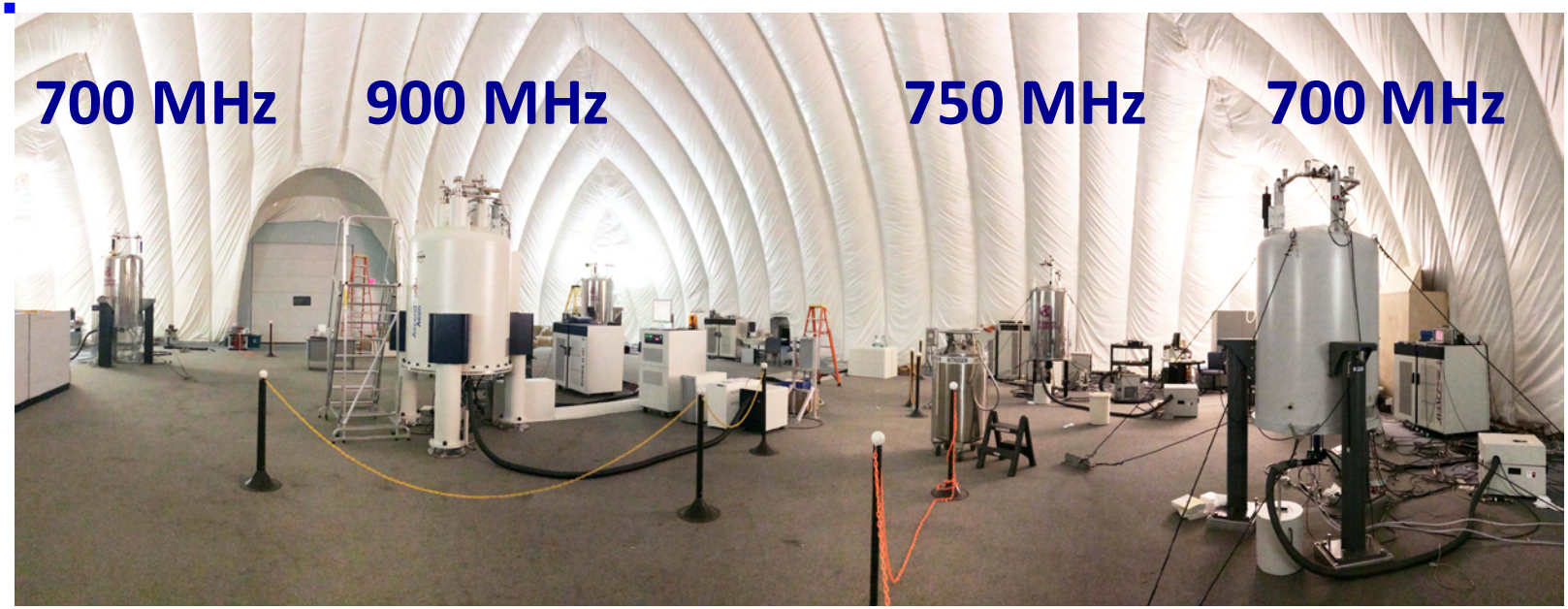

Vpu




fd coat

# *NMR and biochemistry laboratories.*

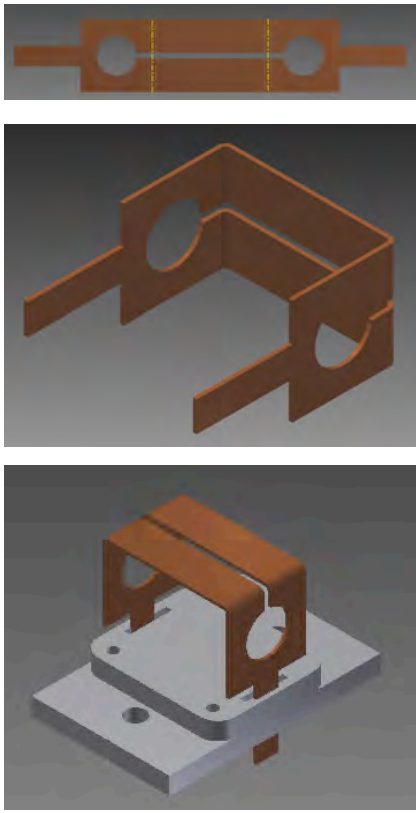
***Solid-state NMR spectroscopy***




***Molecular biology and biochemistry***

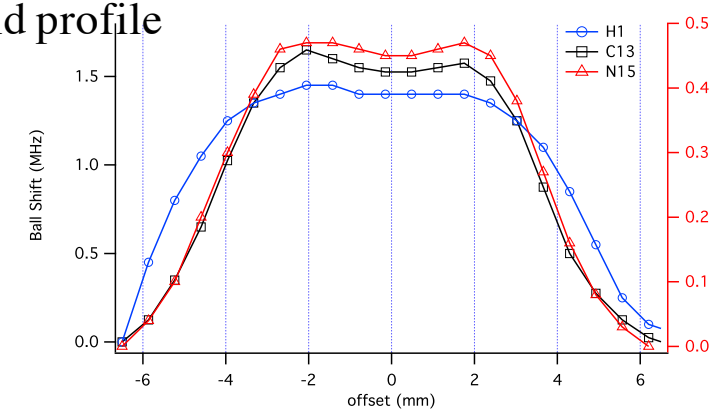
# Coil Design from Concept to Implementation

Computer Aided design

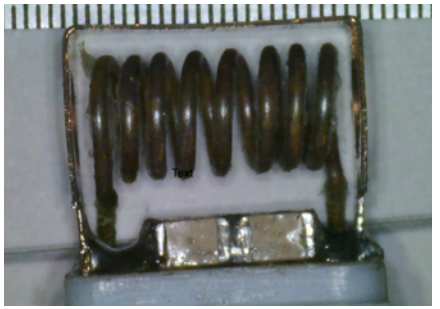


Implementation

B1 field profile

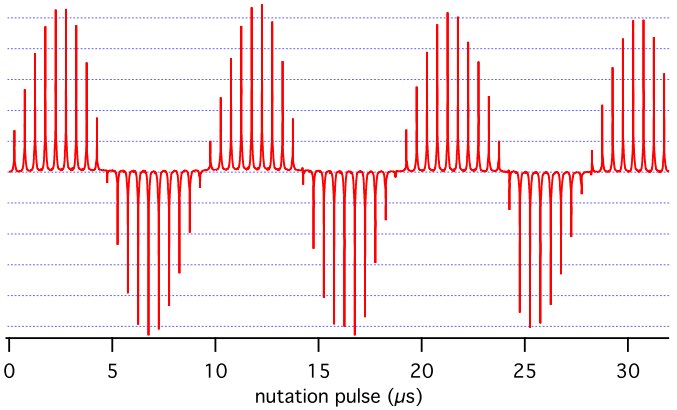



Cross coil



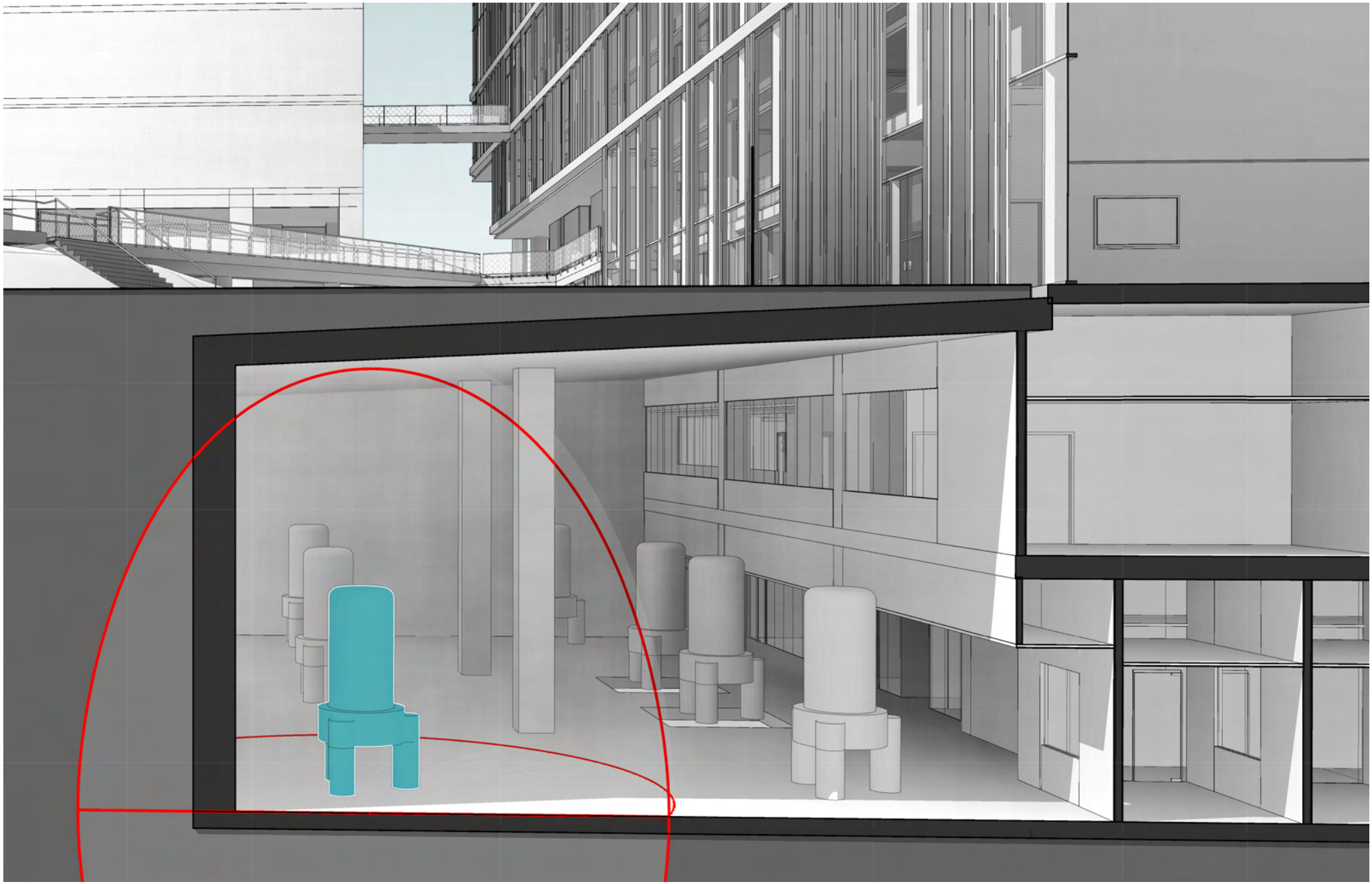
$^1$H channel:
200 Watts

810/90: 95%
$B_1$: 106 kHz



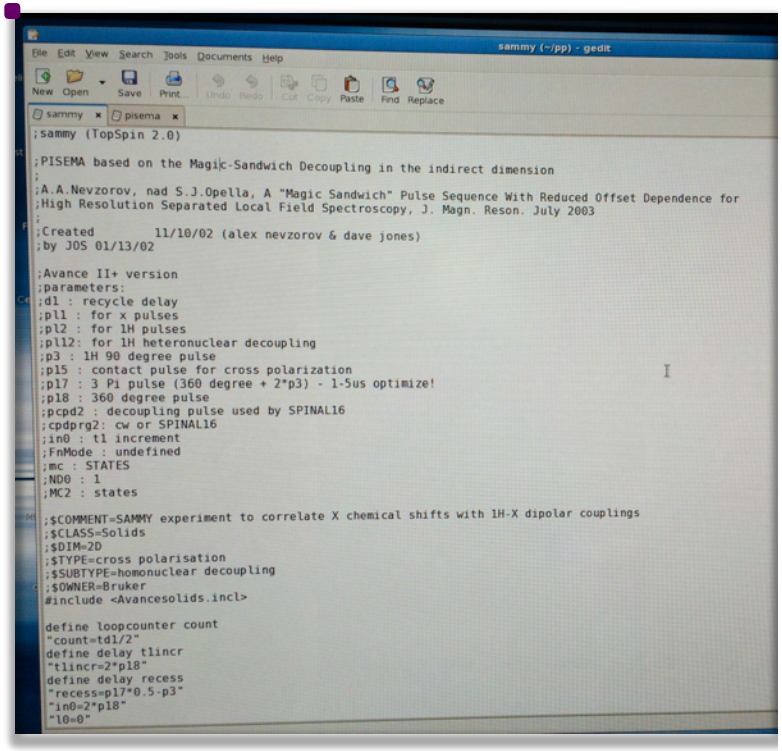
*New Biological and Physical Sciences building with NMR pavilion.*

# *Placement of a UHF magnet in the new Biological and Physical Sciences building.*



# *Dissemination of pulse sequences: NMR vendors.*

- Advantages:
  - Polished and tested programs.
  - Instructions to calibrate.
  - Different software versions available.
- Disadvantages:
  - May take a while to be listed.

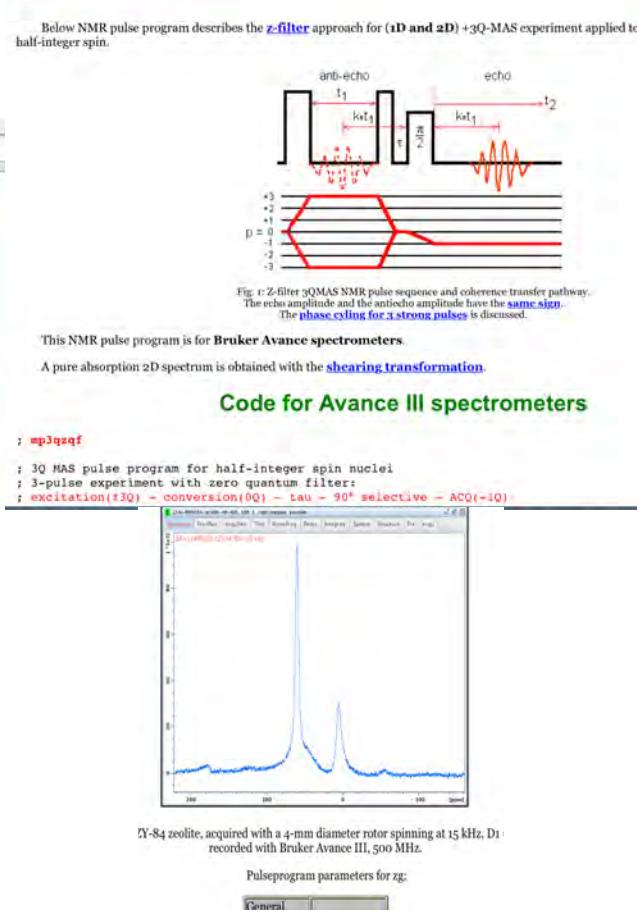



*SAMPI-4 sequence from the Opella Laboratory, available in Bruker Topspin*

## *Dissemination of pulse sequences: Individual Groups.*

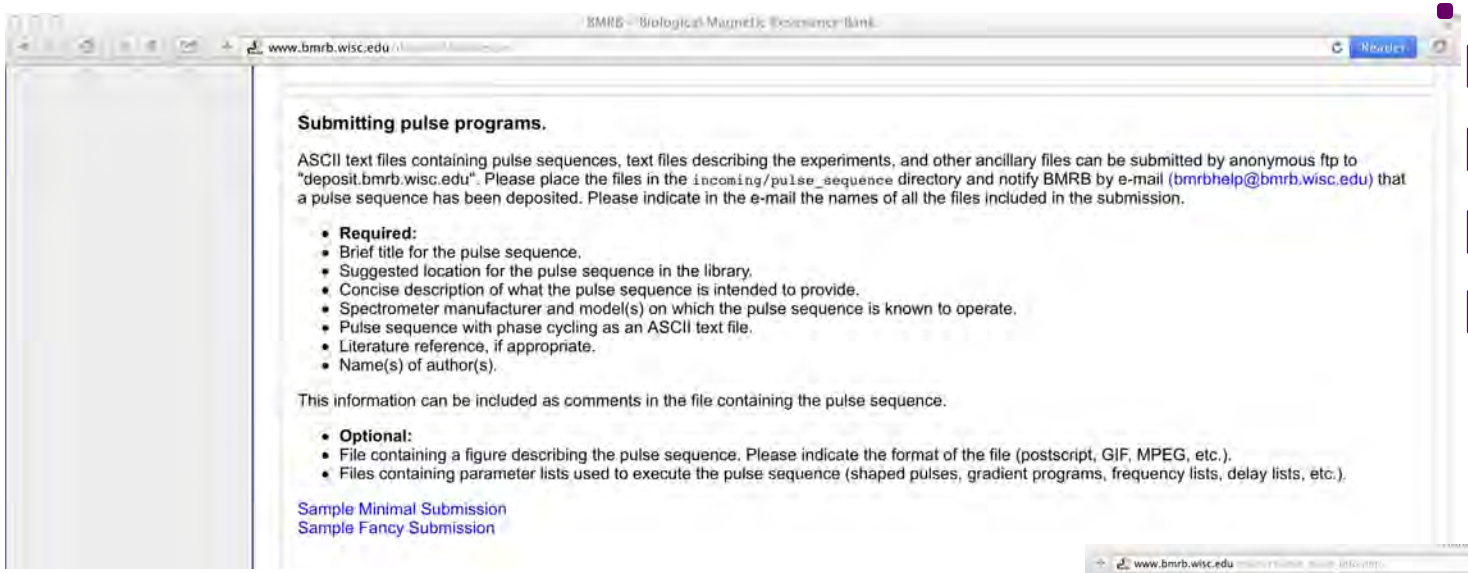
- Common methods.
  - One-to-one communication is the most widely used by small groups
  - Request through a website.
  - Direct download.
  - Download with registration.
- Advantages.
  - Rapid dissemination of the latest pulse sequences.
  - Interact directly with the originators.
- Disadvantages.
  - Generally less polished sequences.
  - Only one or a few software versions available.
  - May require personal communications.

# *Dissemination of pulse sequences: Individual group: Pascal M. Man website.*


- 
  - code
  - diagrams
  - detailed settings
  - example data

# *Dissemination of pulse sequences: Large center: redistributes pulse sequences.*




Biological Magnetic Resonance Data Bank