

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Phys 194–FYRE Assignment #6 Pulsar Timing Exercises

**Assignment Policy:** You can consult class notes, books, and online resources. You can work in small groups (2 or 3), but you must turn in your own work. Make sure you are clear about the process you use to solve the problems: partial credit will be awarded.

### Timing From Scratch

Working individually and without looking at your notes, describe (as best you can remember from class on Monday) the procedure for timing a pulsar. Feel free to use both words and diagrams; be as specific as you can. After 15 minutes, form groups and discuss your responses.

## Folding Raw Data

To access the raw data files for today's lab, we will remotely login to a machine at West Virginia University called *browser*. To do so, we use a command like the following:

```
ssh -XY [user]@browser.phys.wvu.edu
```

and provide an appropriate password. Your username should be the same as the one used for the notebooks with the last two digits reversed (e.g. `uwmresearch01` becomes `uwmresearch10`). The password is the same as the username, but you will be prompted to change it as soon as you login.

Once there, navigate to `/lakit/data/swiggum/FYRE`, make your own directory (`mkdir`) and `cd` into it. To create a soft link to one of the raw data files, use a command like the following:

```
ln -s ../[.fits file] .
```

and don't forget the period at the end to create the link in your current working directory.

1. Run `readfile` on the raw data file and jot down a few pieces of information contained in the header.
  
  
  
  
  
  
  
  
  
  
2. Fold the data using `prepfold`. What are the best spin period (barycentric) and DM values reported in the resulting plot? Remember, you will need to supply initial guesses for spin period and DM and for help with usage, you can run `prepfold -h`. Google the “GBNCC Discoveries” page to find good initial guesses for folding parameters.