

Command line exercise (2014 09 02)

Introduction

In this exercise we will have a look at some data of the LOFAR, LOTAS survey that was looking for pulsars. The data in this exercise unfortunately does not contain a pulsar, but we will have a look through the data anyway. Each possible pulsar detection is saved as an image (in our case a .png file) and a file with the meta data.

The assignments

0. Start a report to be handed in as a A4-sized PDF file. Make sure you include your name and student number on the first page of your report.
1. Download the file rfi.tar.gz (containing a number of pulsar non-detections) and copy it to a directory where you can work.
2. Unpack the tarball, you will now be presented with a number of sub directories containing the images and metadata files.
3. Open of these .png images from the command line. If you don't know which command to use to open these images, perform a web search to find out which command will do that. (Add the command you used to the report.)
4. Now that you have seen the plot, open the metadata (hint: the bestprof files are text files). Looking through this file you will see that the reduced chi-squared is an entry in the header, we will need these later. How many entries are there in the header? (Add the number to your report.)
5. How many possible detections are there in the complete data set? (Add the answer to your report.)
6. Add the picture of the brightest profile to your report (the brightest detection will have the highest reduced chi squared). You should use the meta data to find the brightest non-detection. Also add to the report how you found the brightest one.
7. Now add the 100th brightest profile you report and explain how you found it. (The reader contains a hint as to how you could do this.)