

Automated Fourier analysis with python

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Abstract

In this project, we will write a python program that performs Fourier analysis and prewhitening on multiple time-series automatically. This is essential for analyses of large quantity of data in a short period.

Introduction

There are several interfaces/programs capable of performing Fourier analysis of stellar time-series. These include FAMIAS¹ and Period04², which are available on public domain. These programs are however very interactive and thus can process one data file at a time. Availability of large quantity of space data requires a more automated programs that can reduce amount of time one spend on processing data with interactive programs. This gives one an advantage when working on publicly available data where publications are highly dependant on who finishes analysis first.

Special requirements

Experience with the **Python** programming language and knowledge on Fourier analysis.

Description

This project will involve writing a python program that performs Fourier analysis of many time-series of stars from space telescopes. A written program has to do this analysis without much involvement of the user. Obtained results will be compared with those from FAMIAS and Period04 for consistency purpose.

Required apparatus

A laptop, preferably running Linux, with Python programming language properly installed.

¹2012ascl.soft09014Z

²Lenz P., Breger M. 2005, CoAst, 146, 53