Jorge Lozano - 171319

ABSTRACT

CHIRON is an echelle, high resolution spectrograph mounted on a 1.5[m] telescope in the Cerro Tololo Inter-American Observatory. Currently, Chiron along with its processing software provides astronomical data in a daily basis. The software used for processing the incoming raw data has introduced various shortcomings over the years (Walter 2018). The accuracy and versatility of the software is preponderant for the reliability of the handed astronomical data. This research aims to provide an updated and optimized software pipeline by creating alternatives for cosmic ray's removal, enhance the order tracing including overlapping orders, increase the spectrum coverage of the current software, and produce a more robust wavelength calibration. The results suggest an improvement in the signal to noise ratio of the extracted spectra.

**Title:**

Alternative Reduction Software for the CHIRON high-resolution Echelle spectrograph.

**Course Information:**

74:499 Fourth Year Thesis:

Prerequisite: Permission of Department. Limited to fourth year

students in Physics.

A research project in one or more areas of specialization to be

selected in consultation with the instructor in charge. The student

will be required to submit a research paper at the conclusion of the

project. Arrangements for taking this course must be completed

with the Department by January 1 preceding the beginning of the

course

**Instructor's name:**

Dr. Austin F. Gulliver (https://people.brandonu.ca/gulliver/)