PyWD2015 – A New GUI for Wilson – Devinney Code

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Contents

What is PyWD?

- **Graphical user interface for Wilson – Devinney (WD) 2015**
  - Generates dcin and lcin files
  - Runs DC and LC programs
  - Visualises the outputs
- **Covers nearly all features of WD2015**
  - With the exception of subsets (will be included)
- **Has Additional User Tools**
  - Drawing critical Roche potentials, solution history, project management etc.

What is PyWD?
- Why?

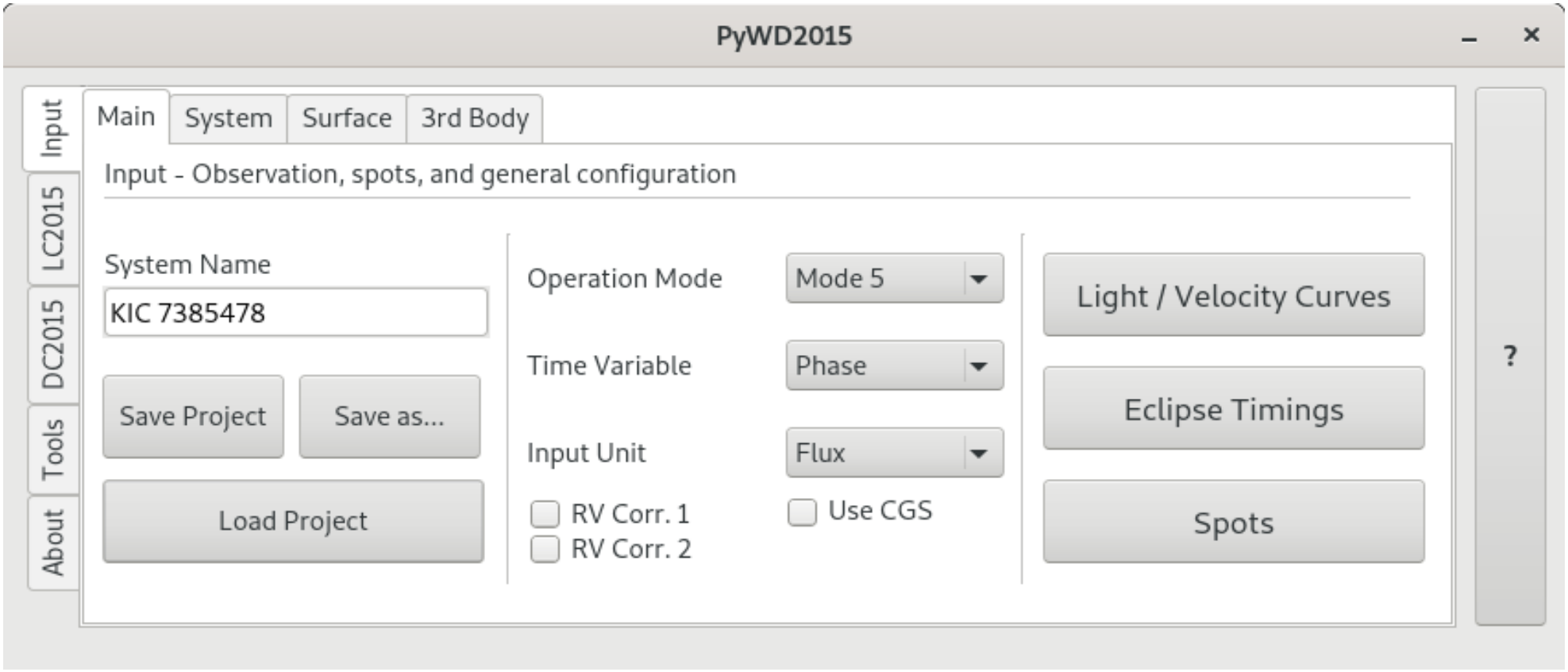
- **2 Main Reasons:**
  - Currently, no GUI for WD2015
  - WD is a great “dedicated study” code

What is PyWD?
- How?

- **Written in Python 2.7**
  - Matplotlib
  - Numpy
  - Scipy
- **Qt4 GUI Framework**
  - Cross-platform (Linux and Windows tested)

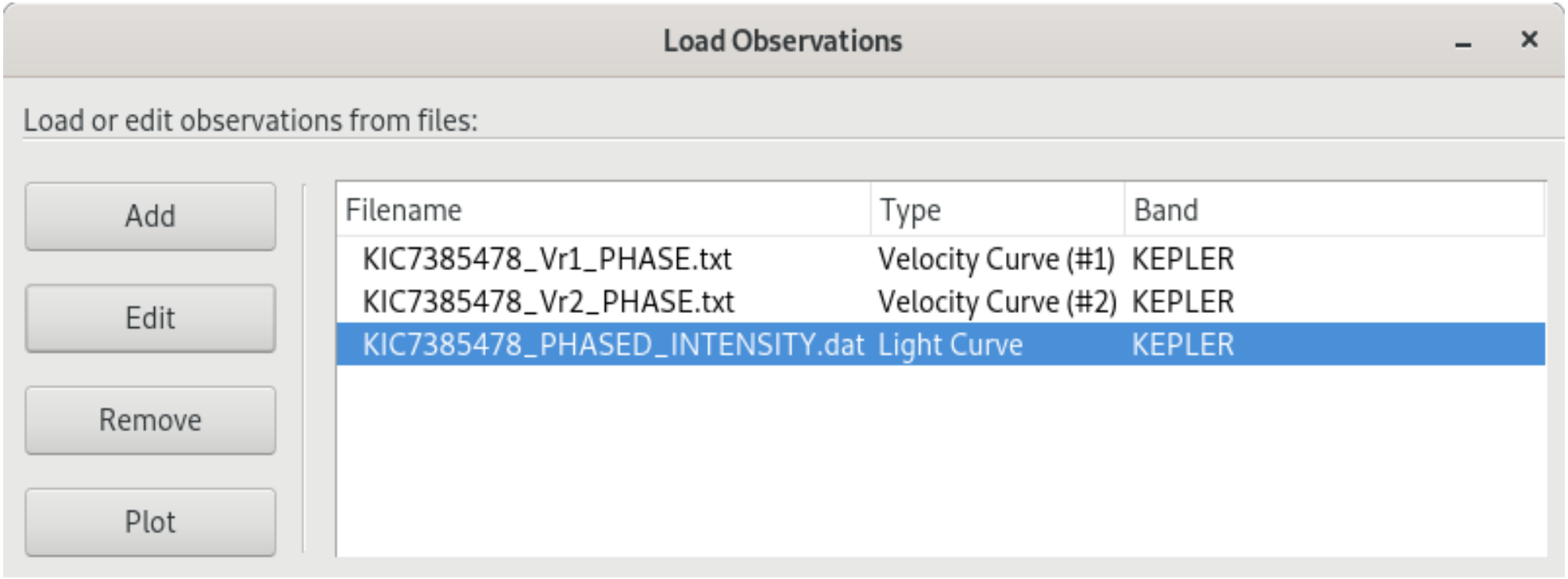
A Simple Example
- Modelling a System

- Main Window



A Simple Example
- Modelling a System

- Loading Observations



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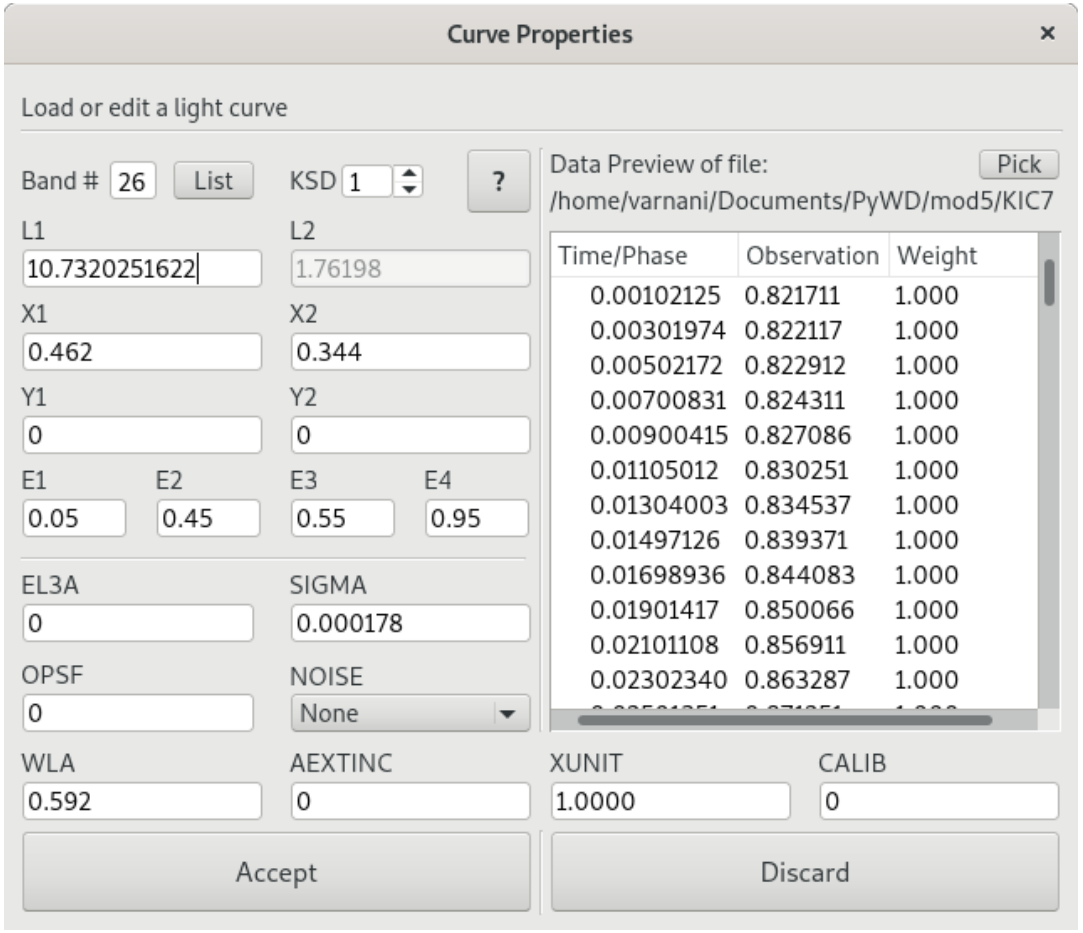
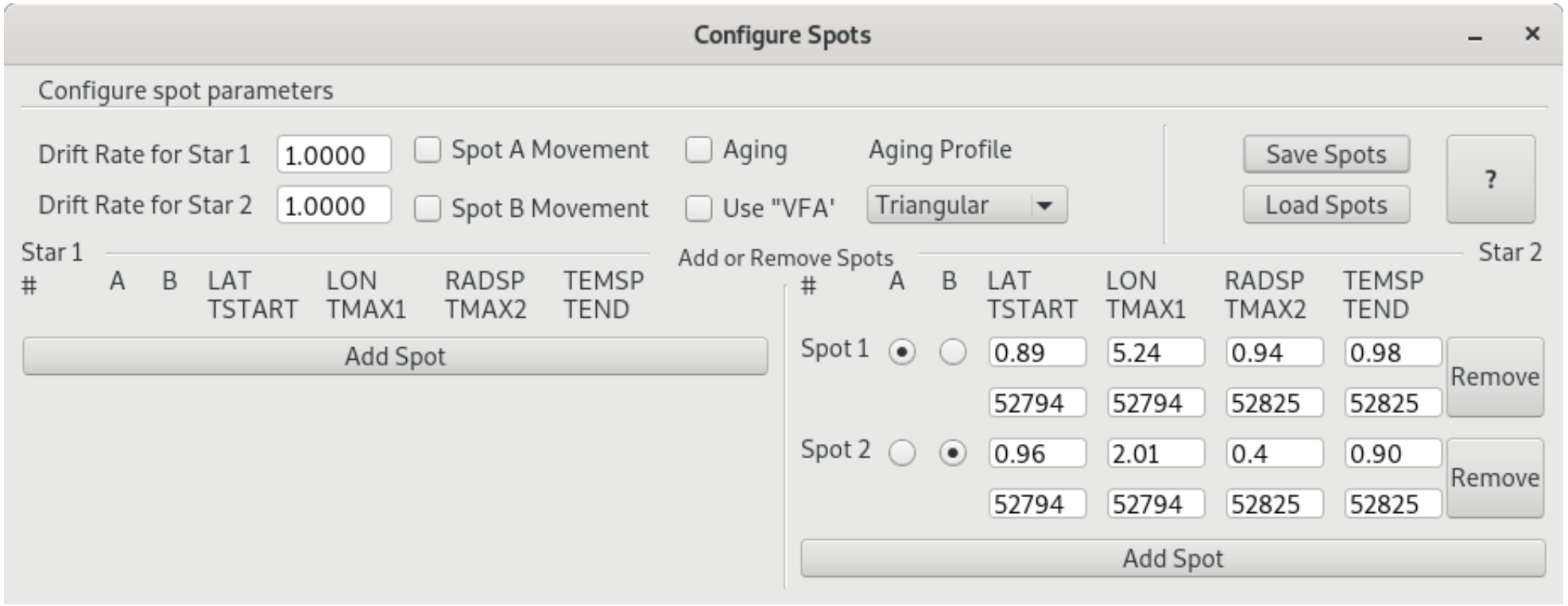


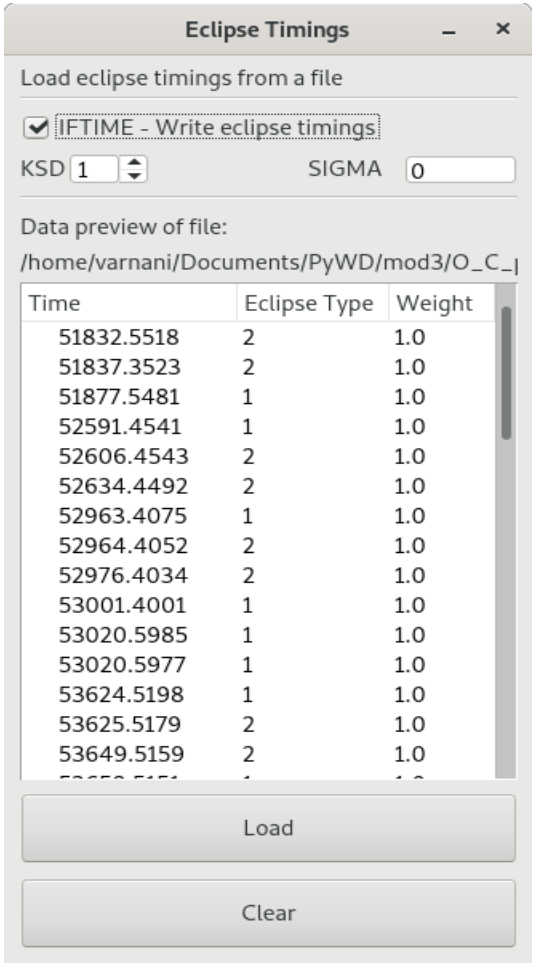
A Simple Example - Modelling a System

- Adding spots



A Simple Example - Modelling a System

- Eclipse timings



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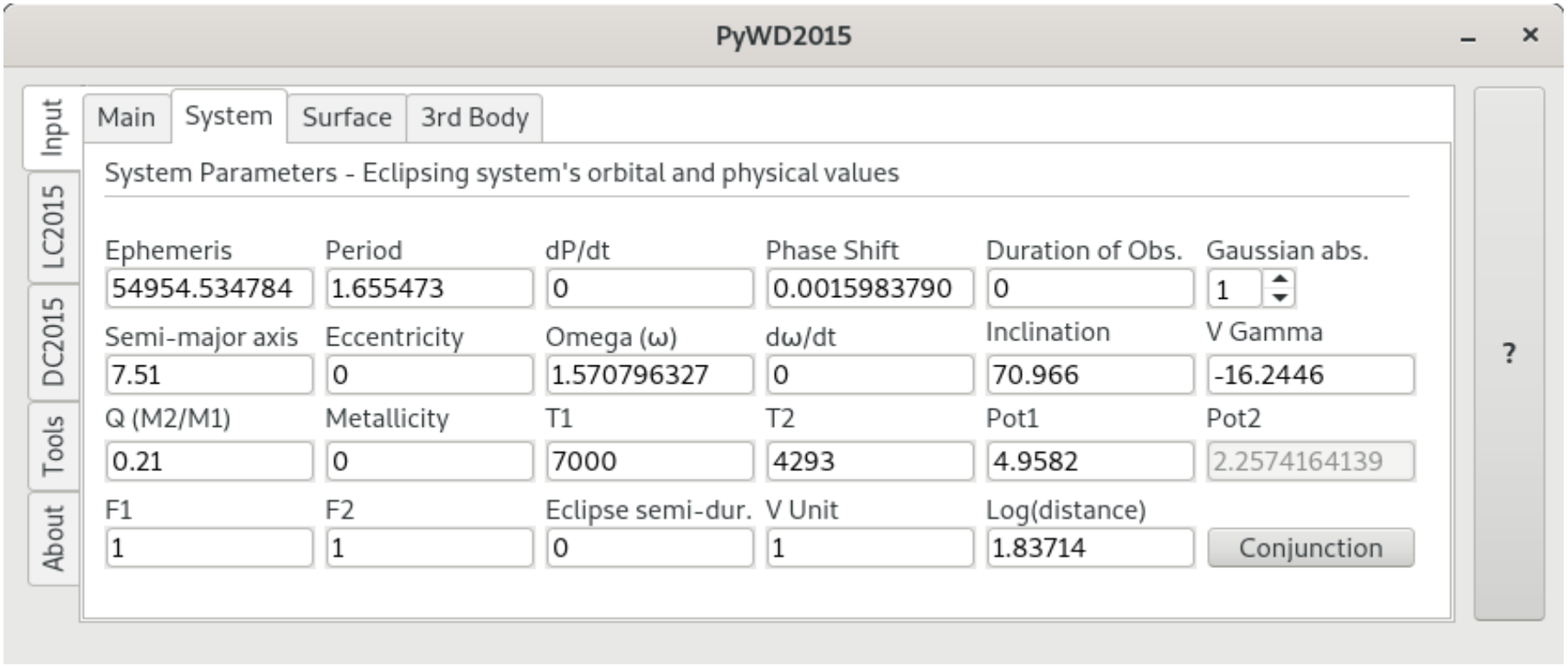
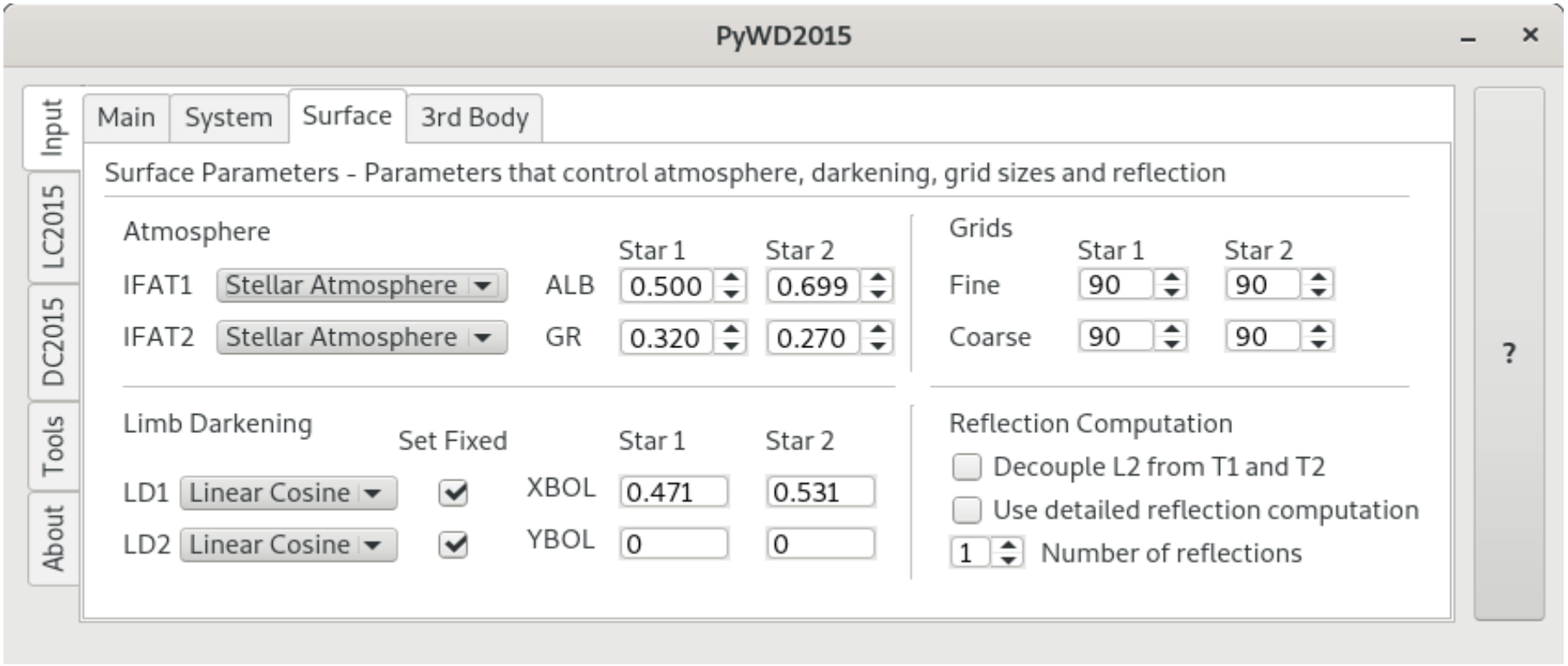
- System Parameters



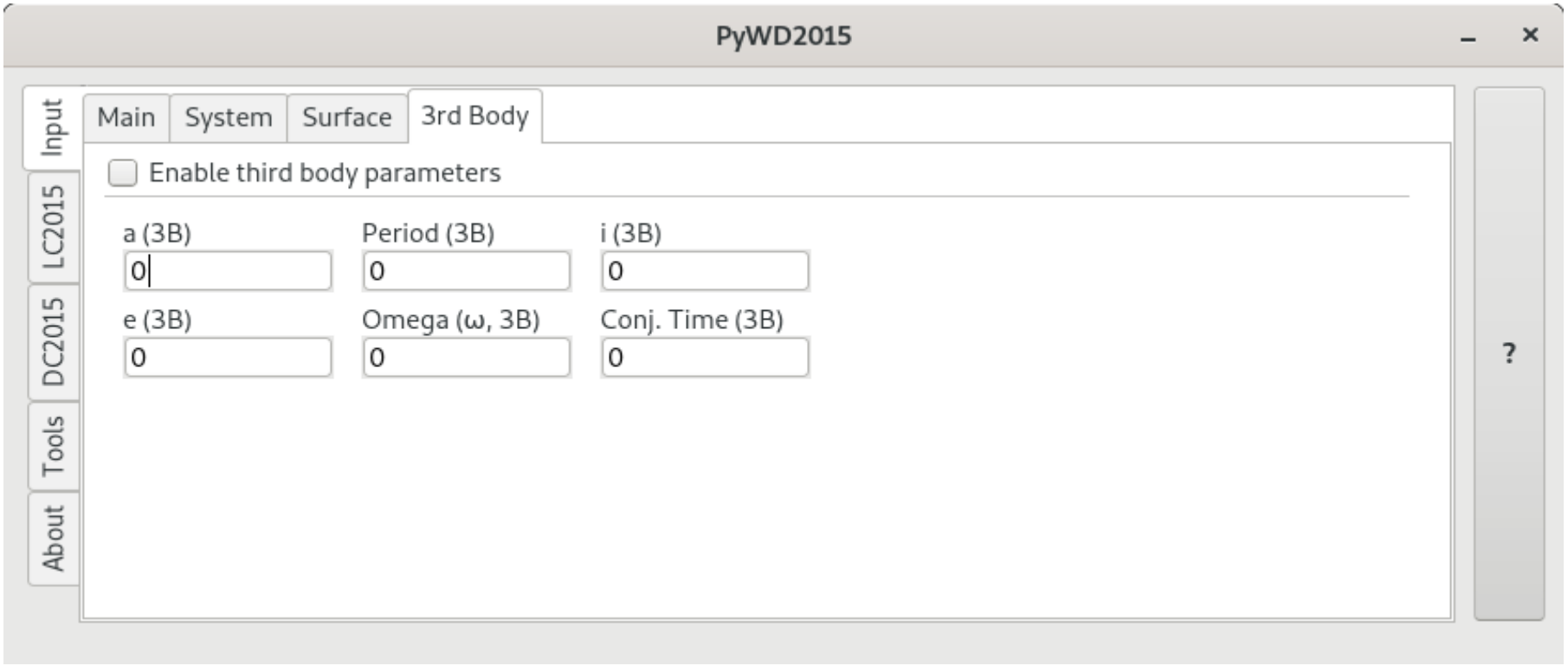
A Simple Example - Modelling a System

- Surface Parameters



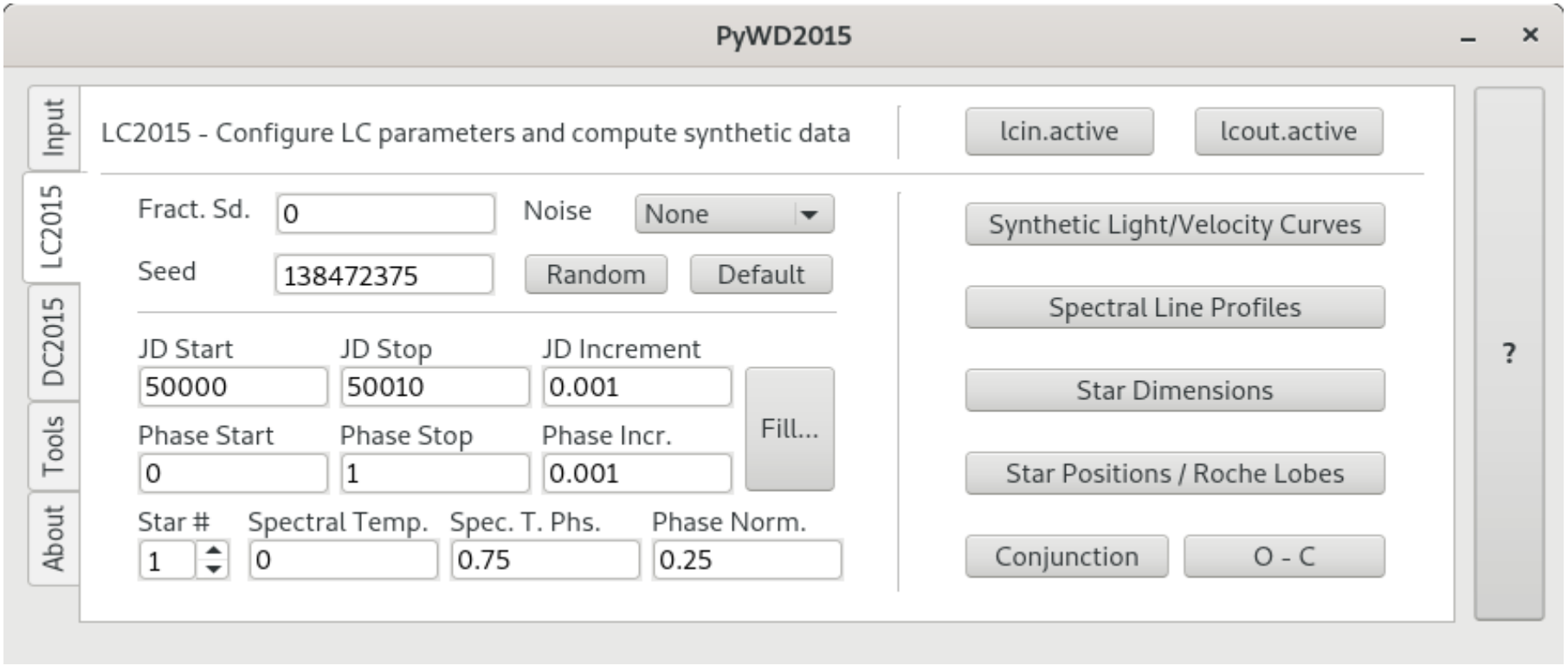
A Simple Example
- Modelling a System

- Third Body Parameters



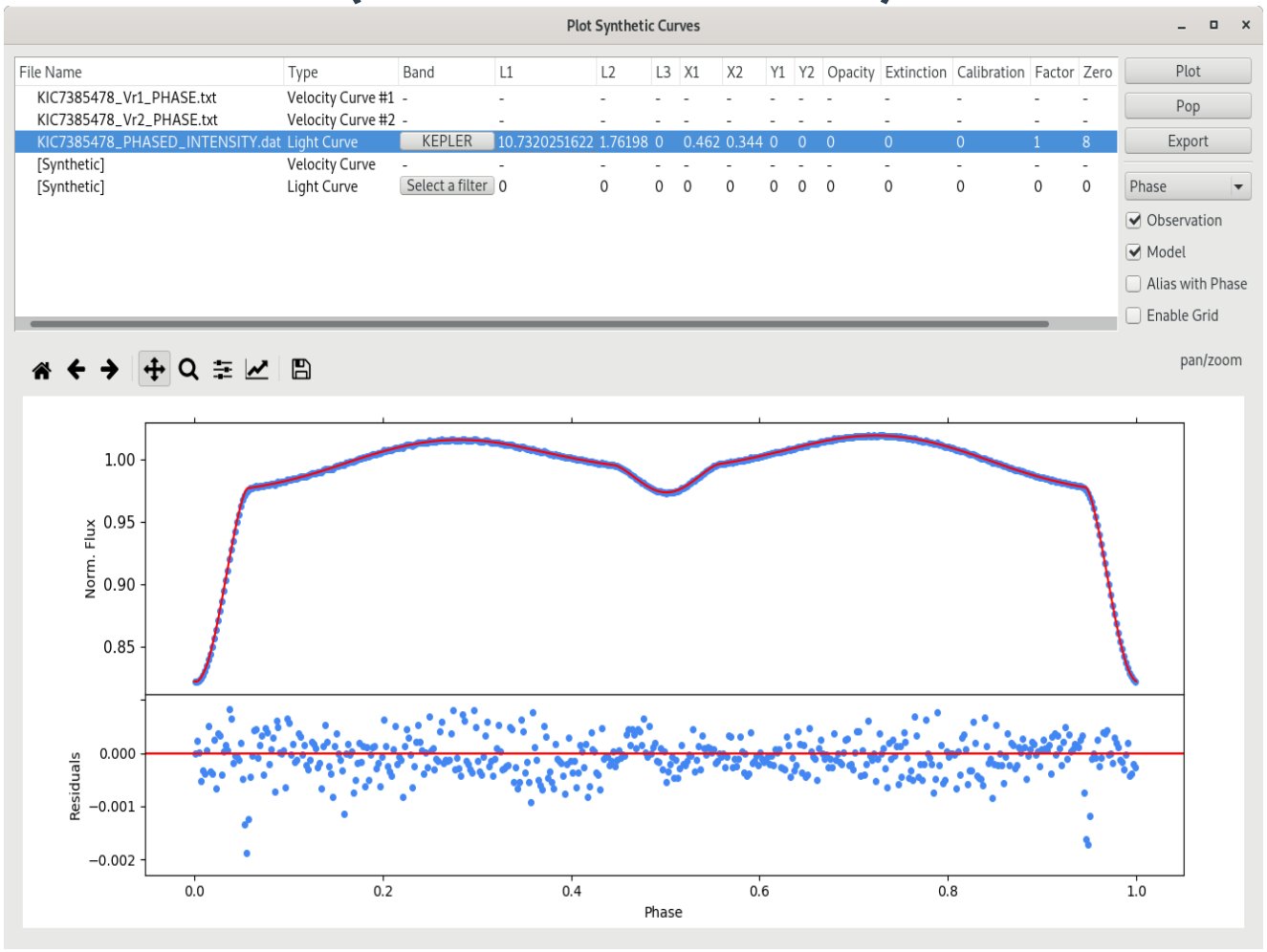
A Simple Example
- Modelling a System

- LC Tab



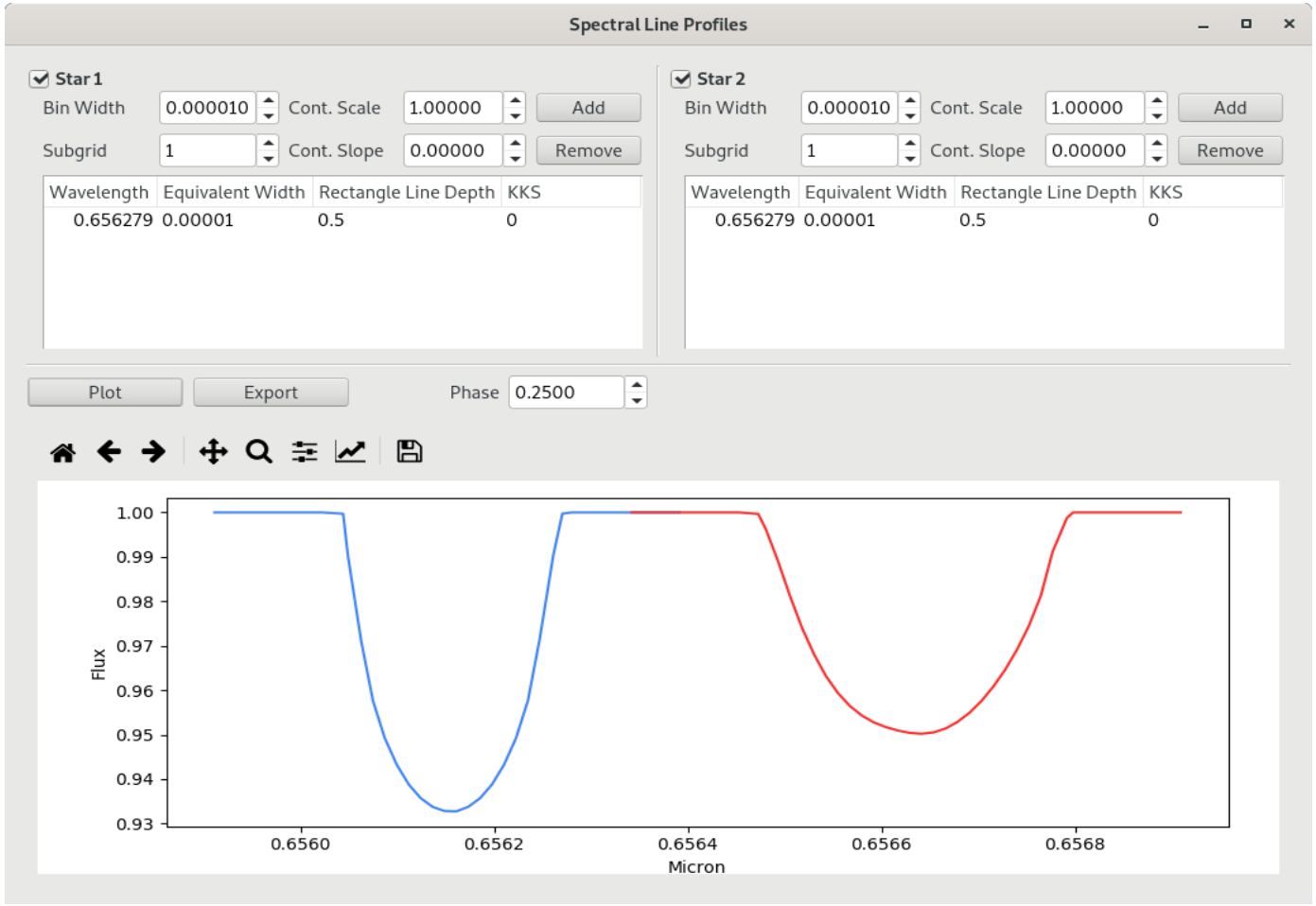
A Simple Example
- Modelling a System

- Synthetic Curves (MPAGE 1 and 2)



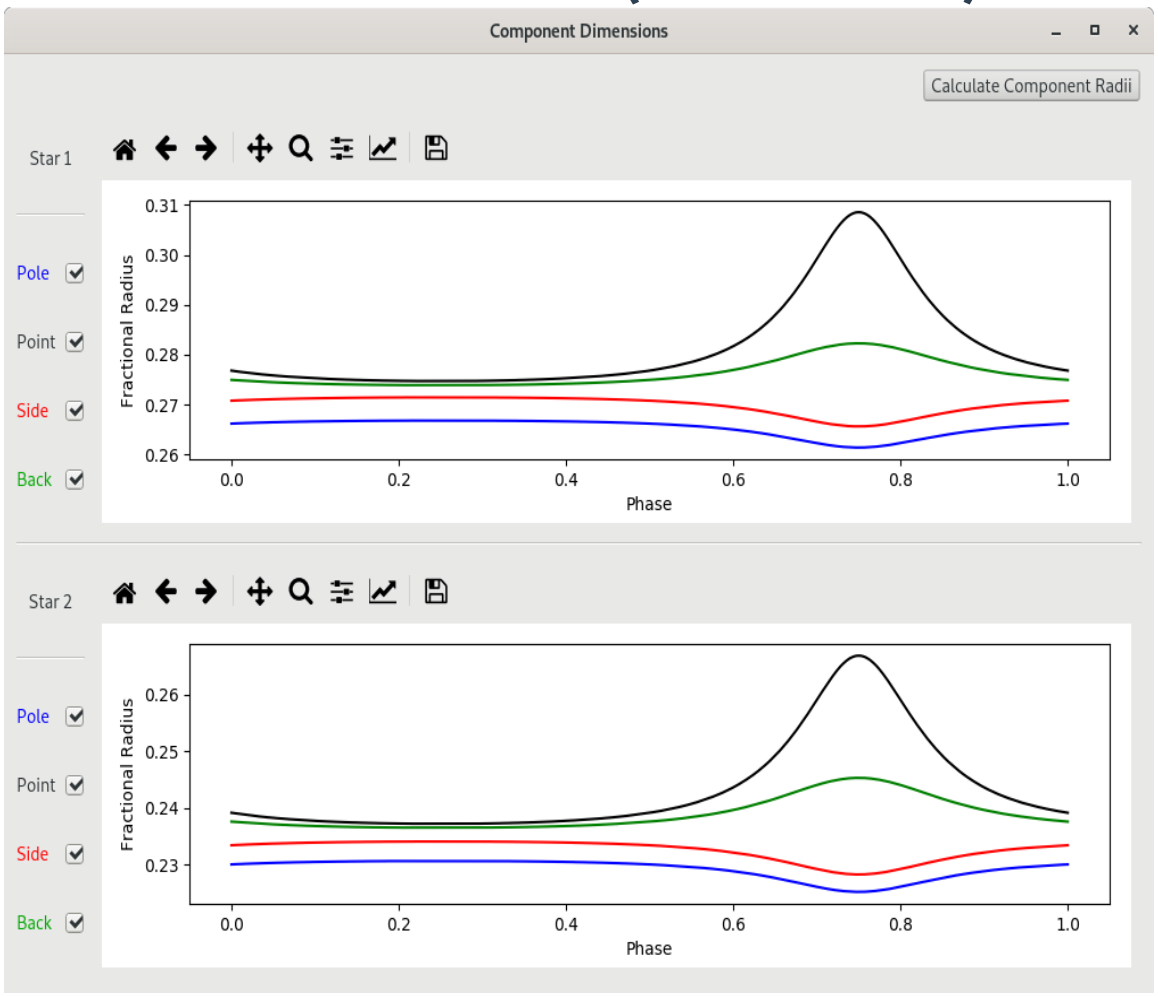
A Simple Example
- Modelling a System

- Spectral Line Profiles (MPAGE 3)



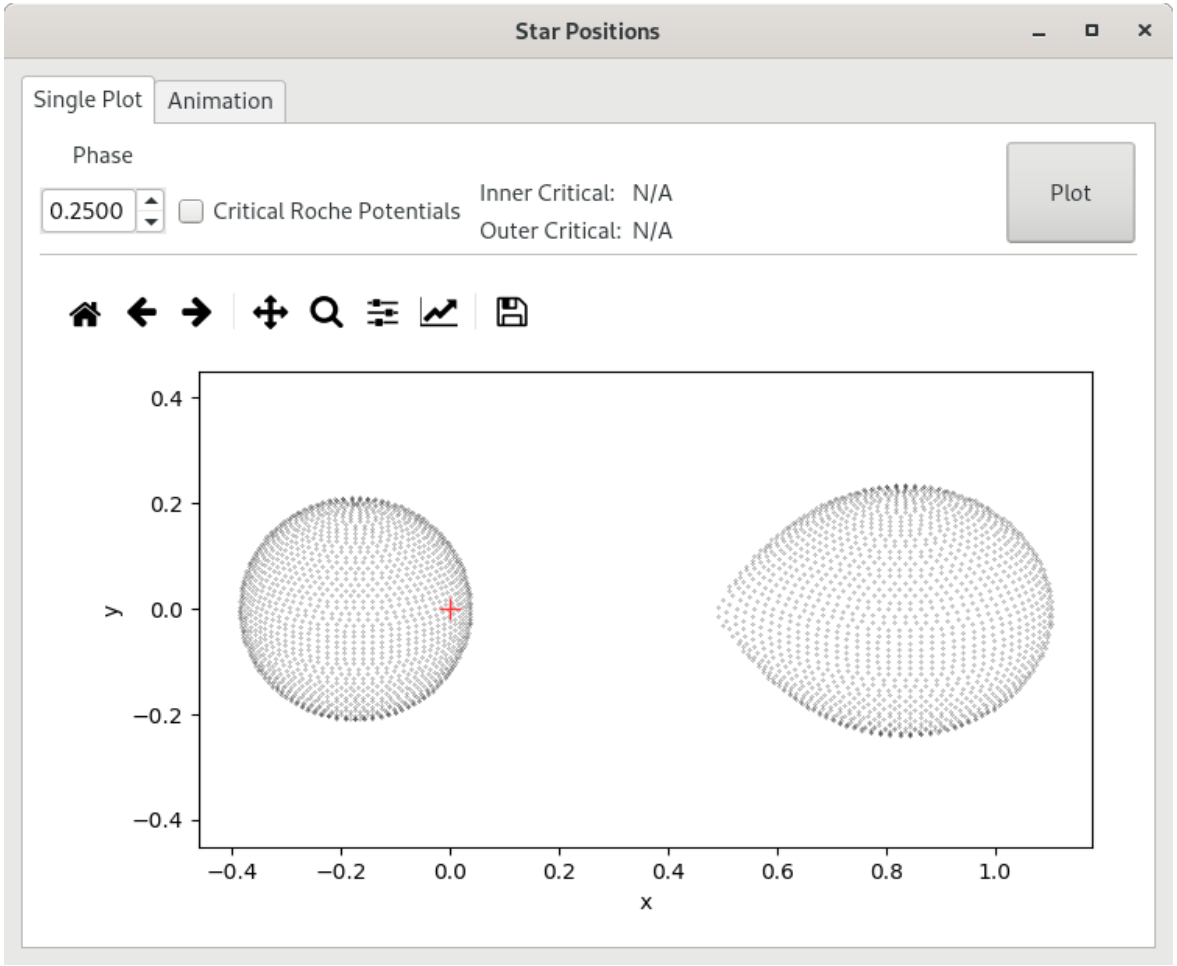
A Simple Example
- Modelling a System

- Component Dimensions (MPAGE 4)



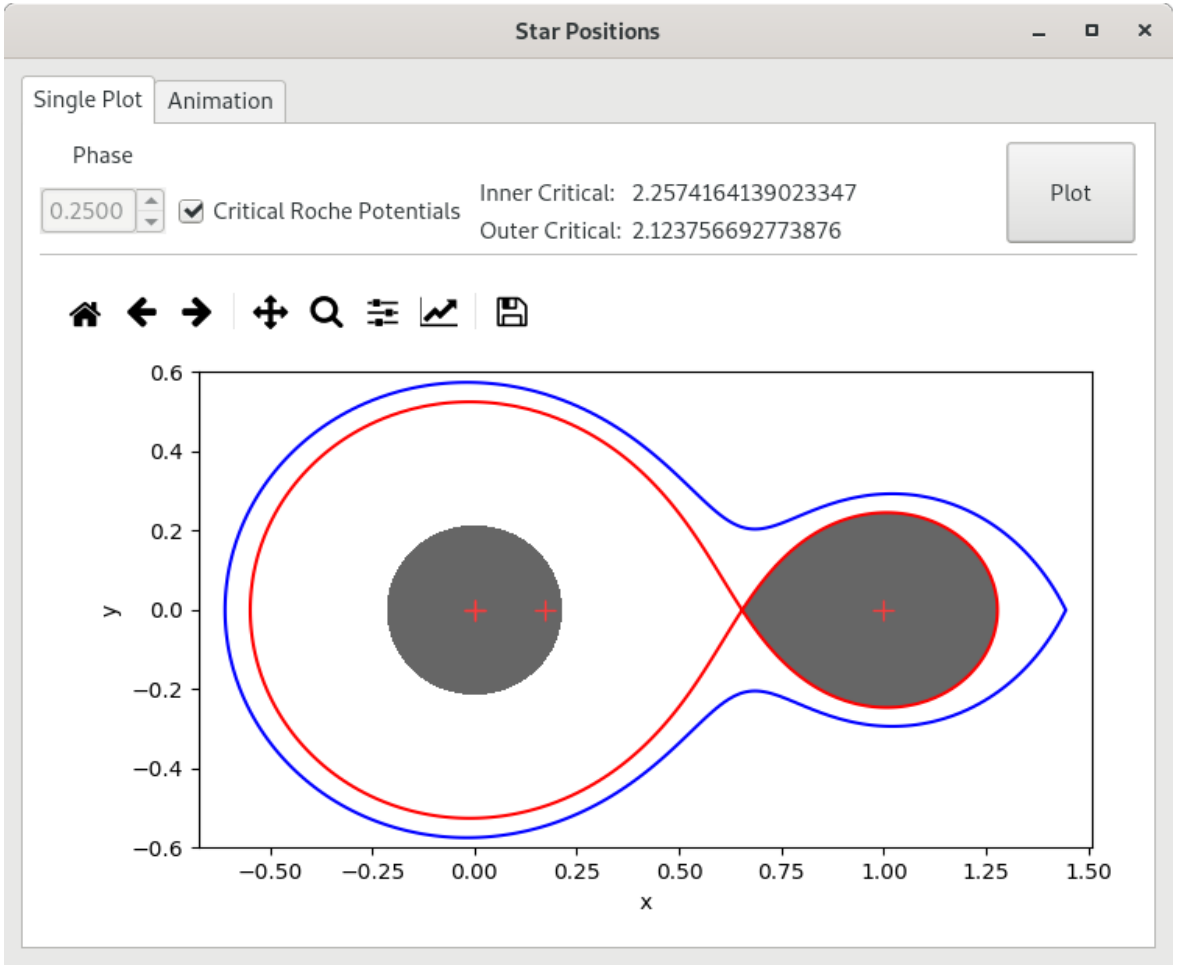
A Simple Example
- Modelling a System

- Star Positions (MPAGE 5)



A Simple Example - Modelling a System

- Roche Potentials



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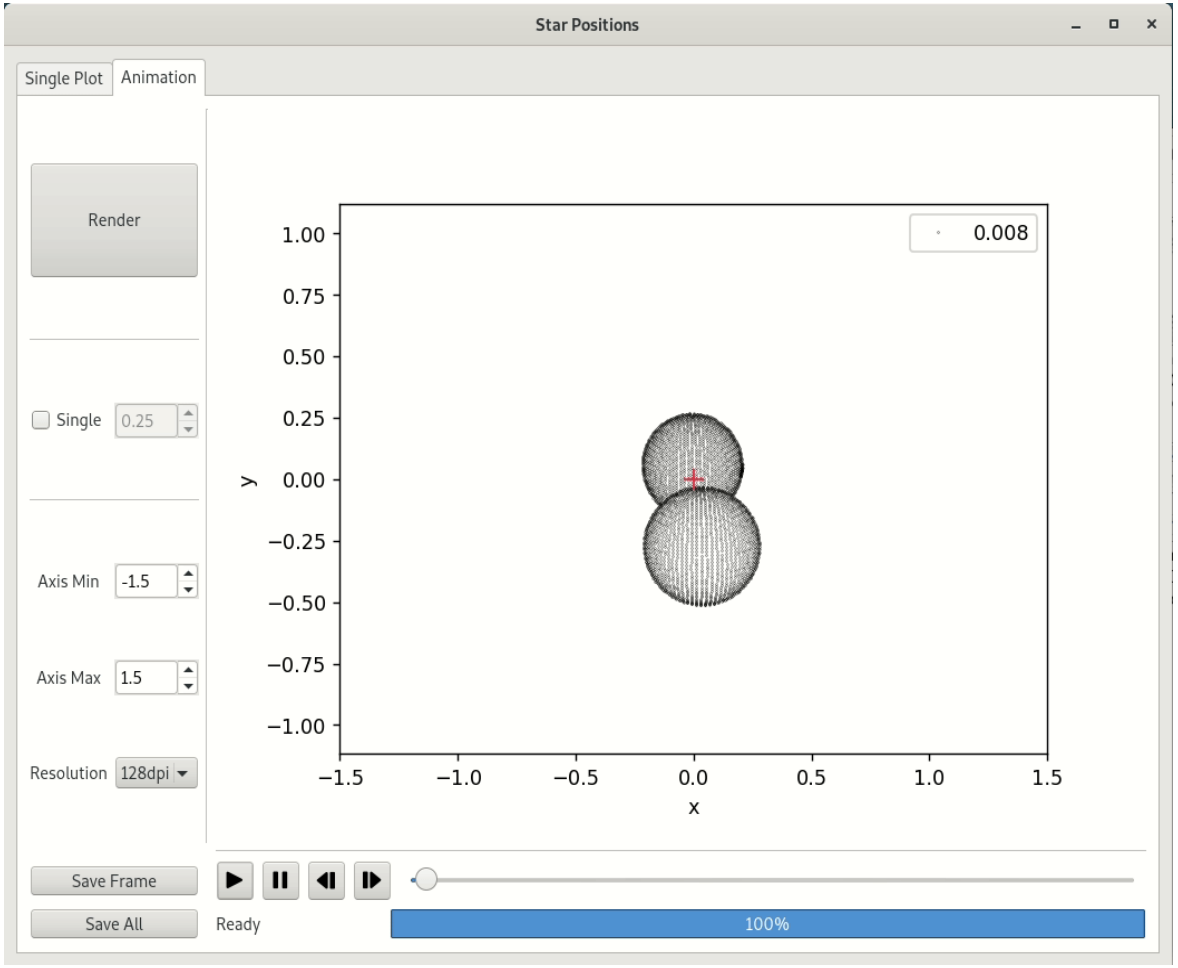
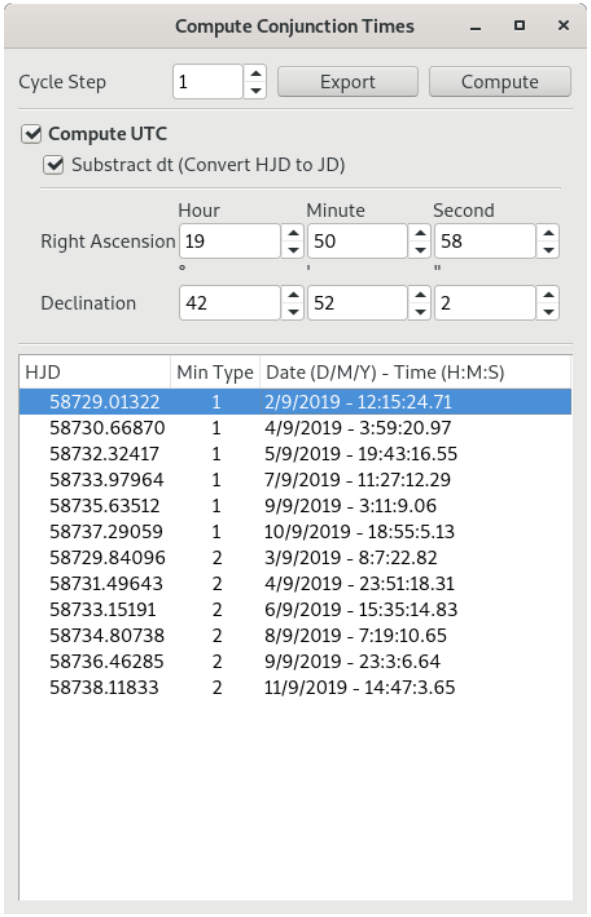
- Star Positions (MPAGE 5)



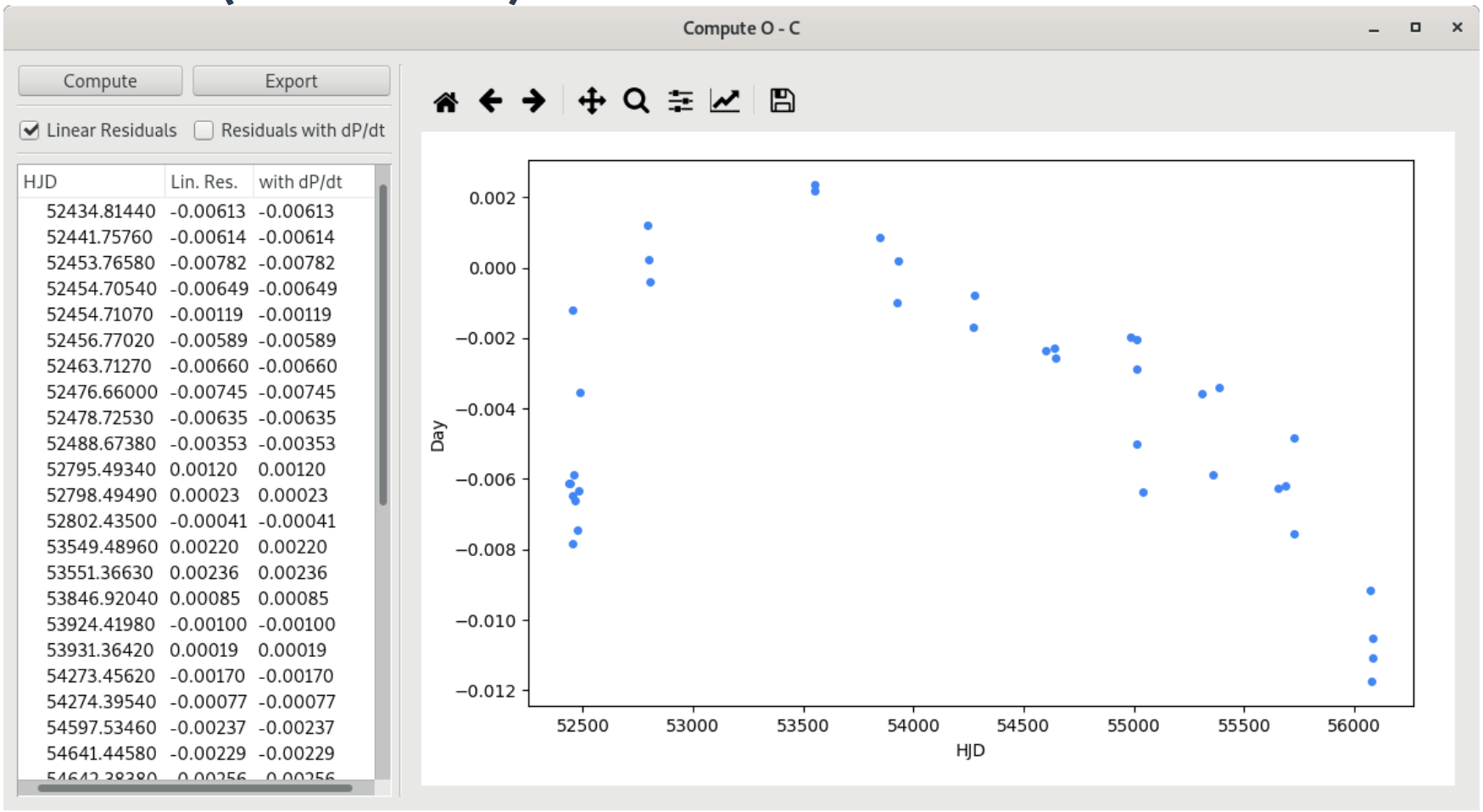
A Simple Example
- Modelling a System

- Conjunction (MPAGE 6)



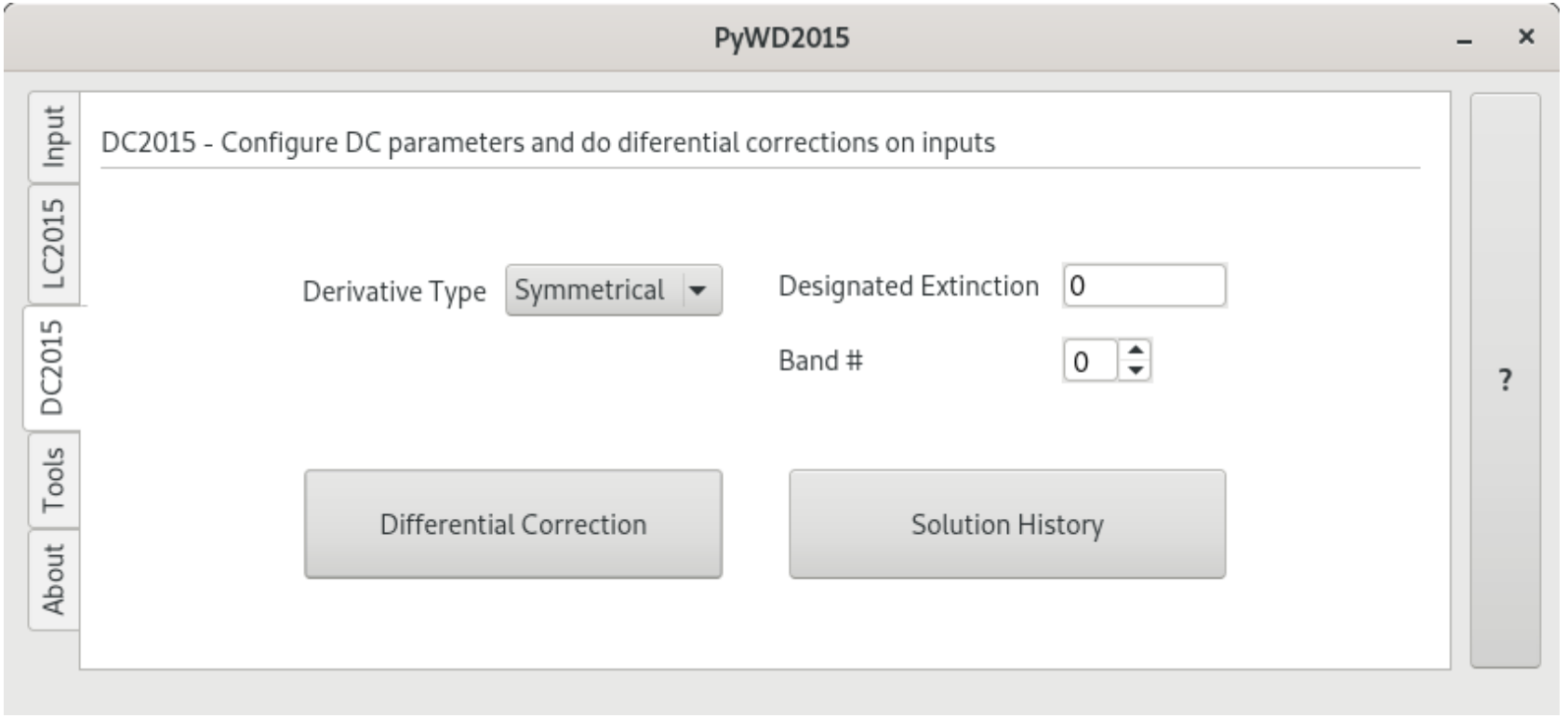
A Simple Example
- Modelling a System

- O – C (MPAGE 6)



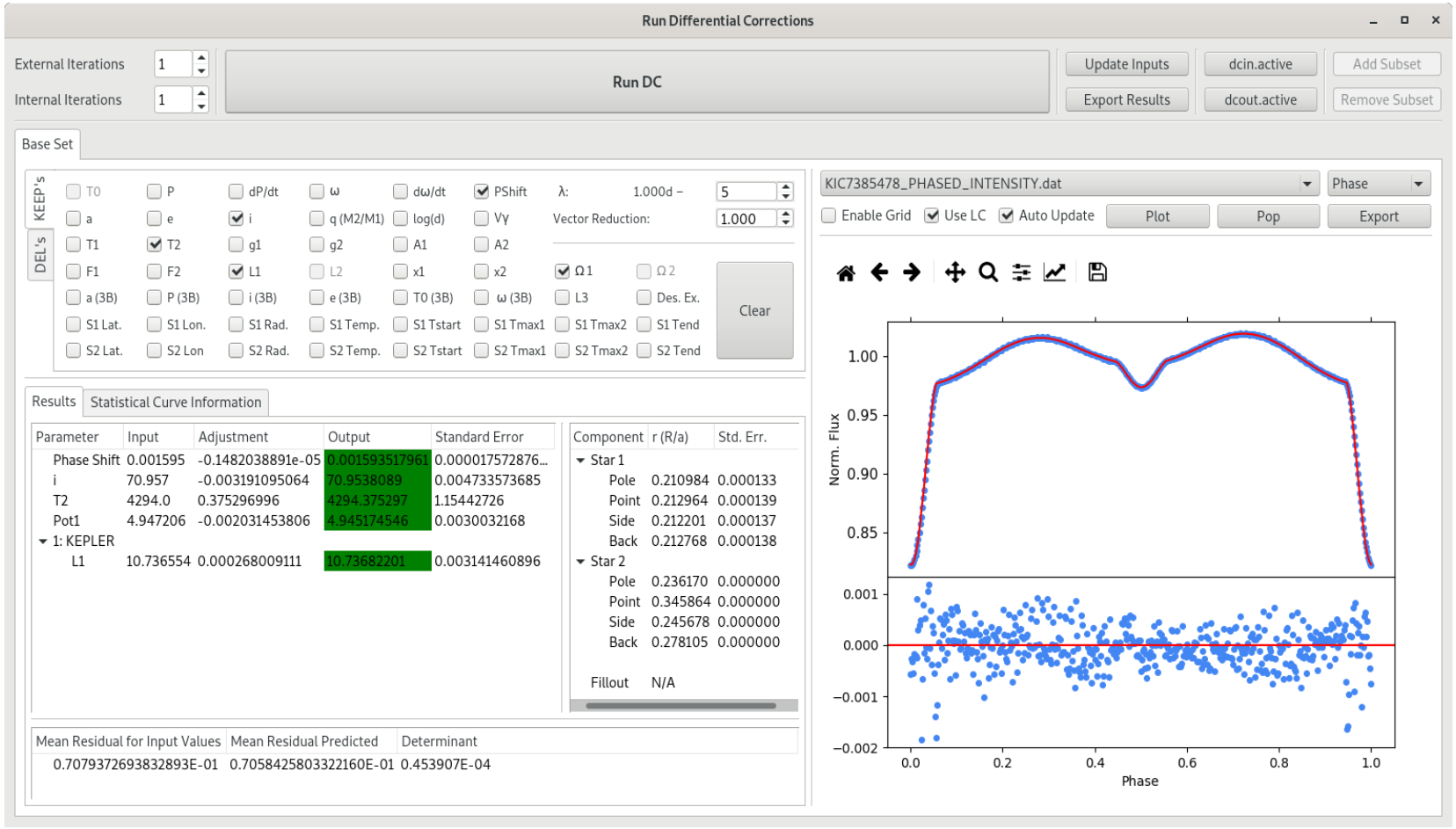
A Simple Example
- Modelling a System

- DC Tab



A Simple Example
- Modelling a System

- Differential Corrections



A Simple Example
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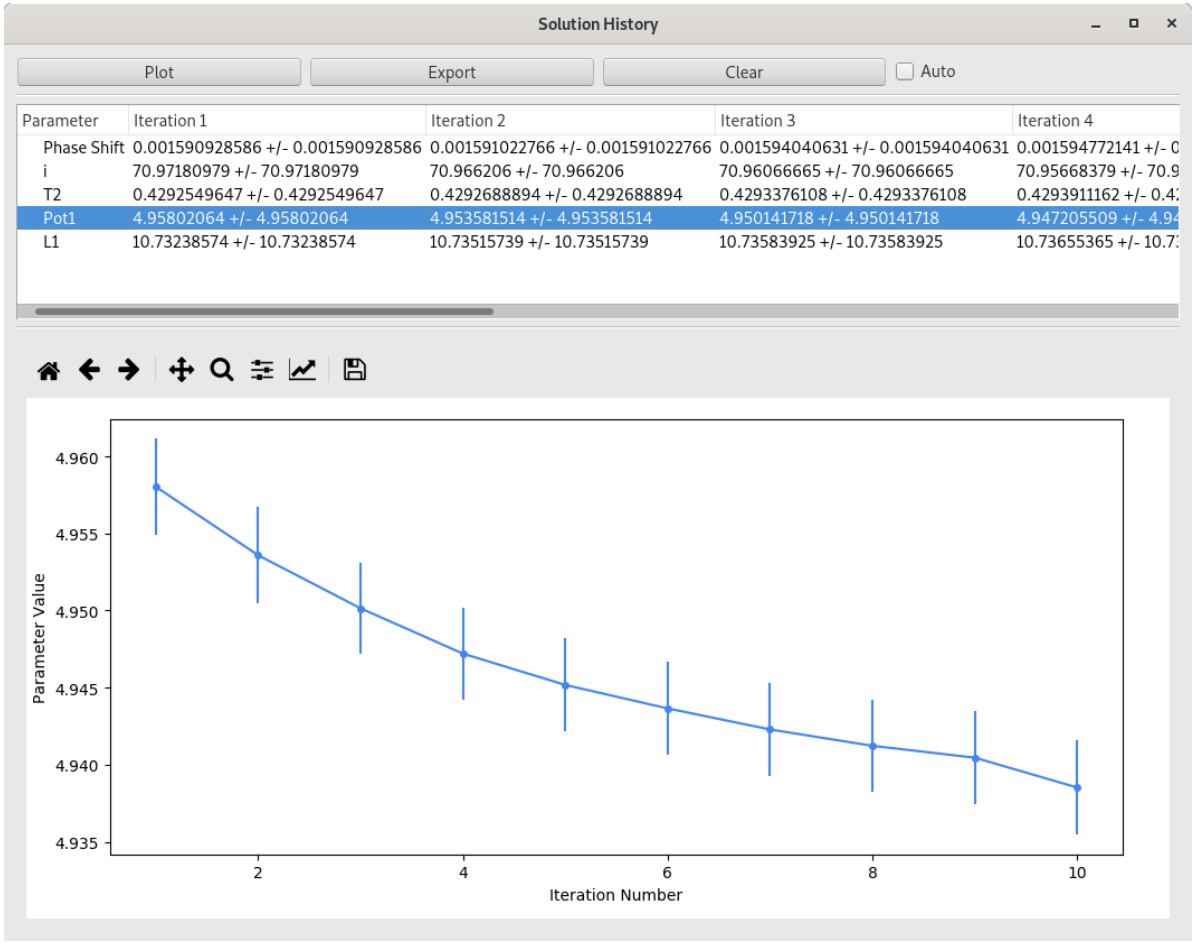
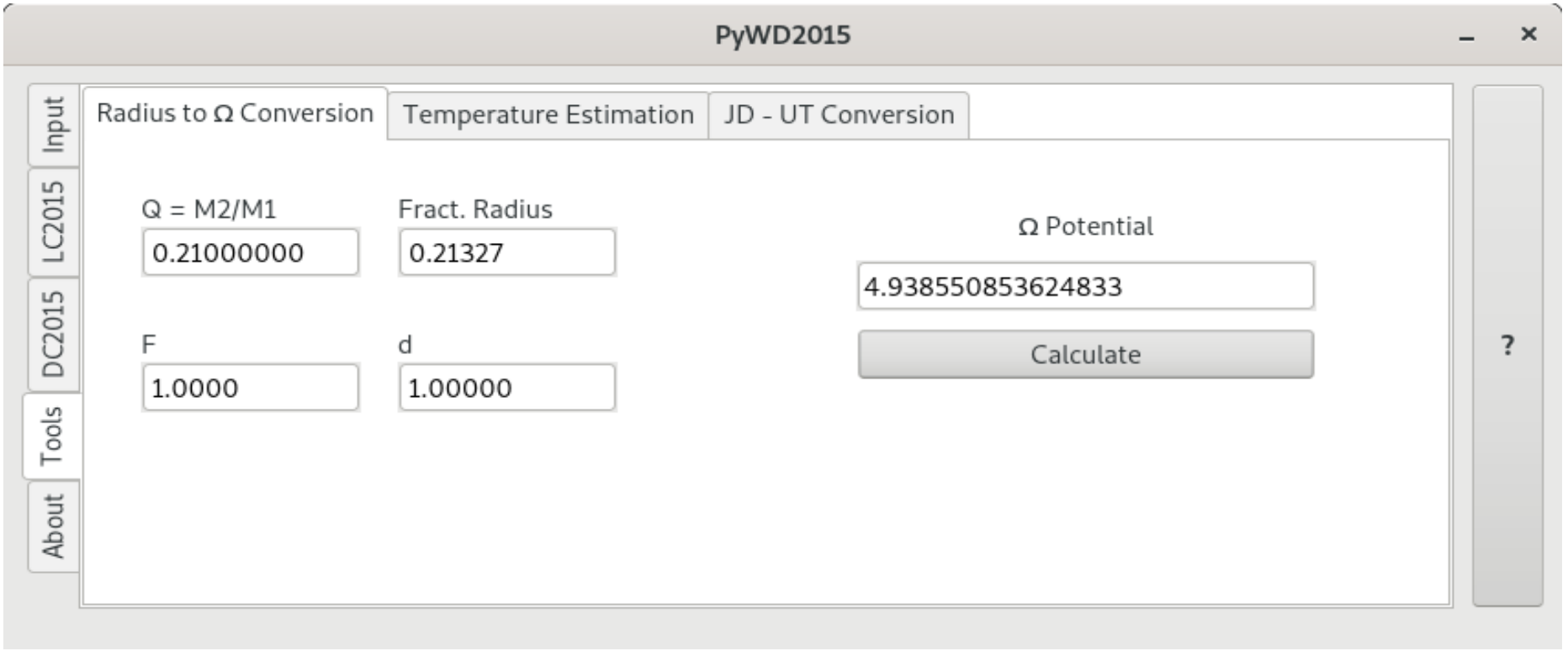
- Solution History



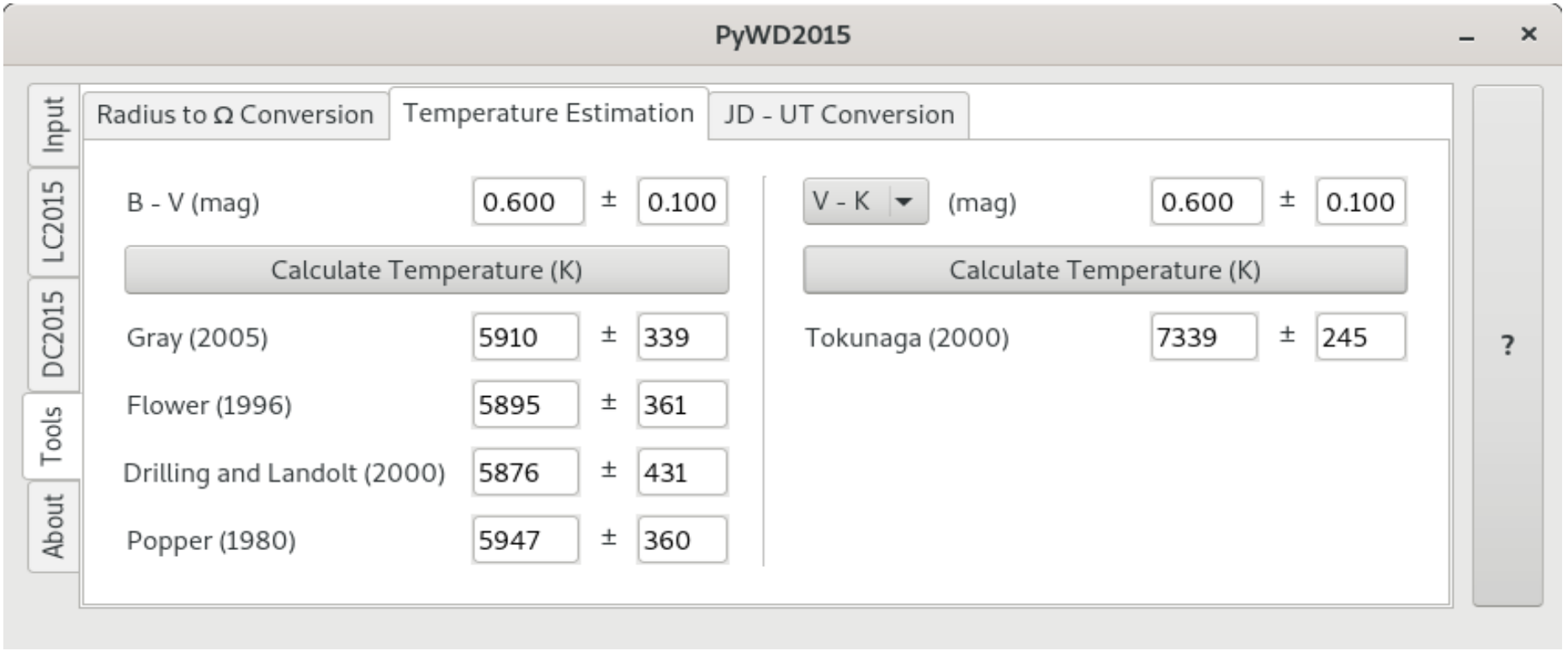
A Simple Example
- Additional User Tools

- Radius to Potential Conversion



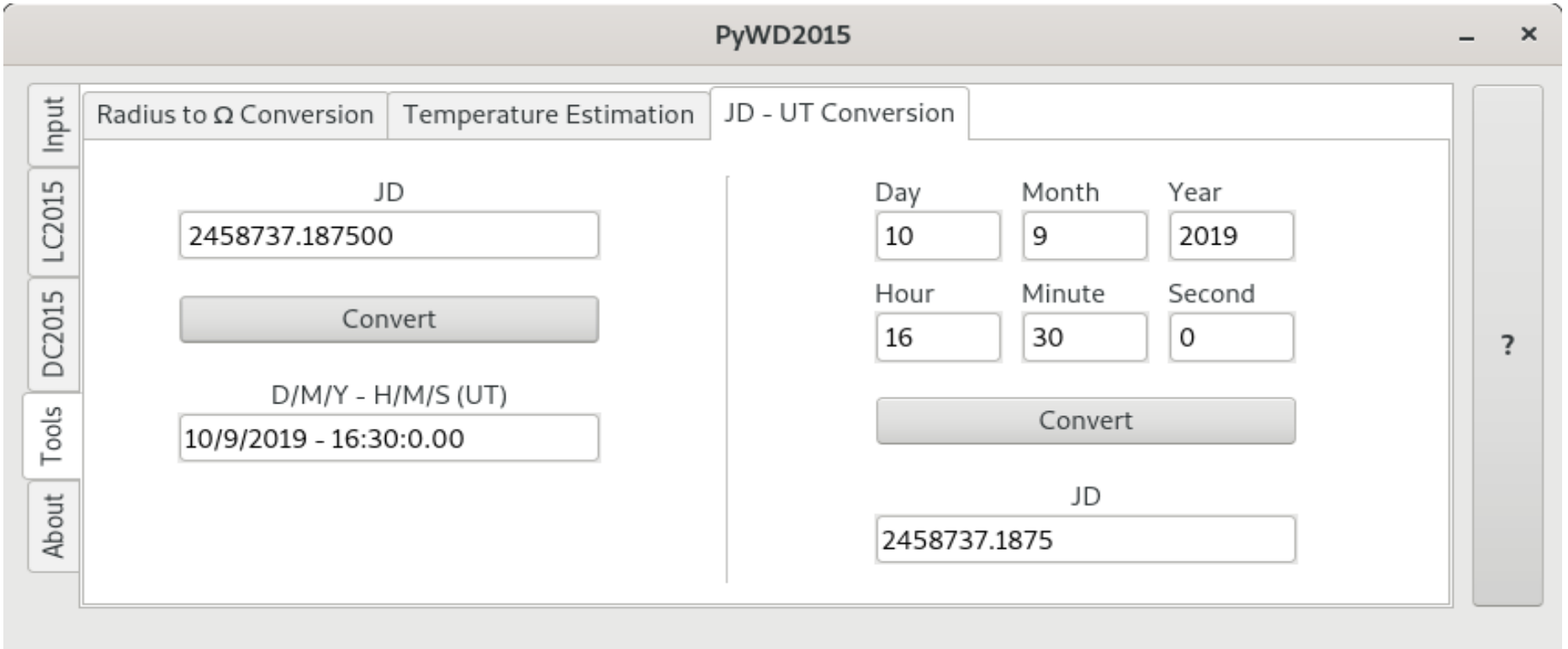
A Simple Example
- Additional User Tools

- Temperature Estimation



A Simple Example
- Additional User Tools

- JD – UT Conversion



Future

- **Code Refactoring**
  - Upgrading from Qt4 to Qt5
  - Major code rewrites
  - Still Python 2.7 (3.* ?)
- **Release & Beyond**
  - GitHub for releases, bug tracking and manuals
  - ???

Thanks to:

- **Dr. Robert E. Wilson**
- **Dr. Walter van Hamme**
- **Dr. Dirk Terrell**

  - Dear listeners, for your patience