

UPDATING THE SCIENTIFIC USEFULNESS OF THE SPLATALOGUE DATABASE

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Splatalogue is an online database for astronomical spectroscopy created and maintained by the National Radio Astronomy Observatory (NRAO) that contains over 11 million spectral lines of over 1300 different species; these lines are from over 15 different linelists. The Splatalogue user interface (splatalogue.online) was built on an old interface and while it has worked very well for the community over the course of the past 15 years, it does lack basic functionality that will allow for more scientific analysis done with the data contained in the database. This project involved working to complete four goals to facilitate both future development of this website and the work of astronomers who use it; the first, second, and fourth goals were fully completed within the time of this Research Experience for Undergraduates (REU) project at the NRAO in the summer of 2022. The third was partially completed in that the switch was made from PHP to Python as the base of the web server technology, but the feature integration was not fully completed.

1. **Security:** Ensuring the site was safe from attacks so it can be consistently available as a secure resource for the astronomical community.
2. **Documentation:** Documenting the project code to facilitate future development of the site.
3. **Modern Technology Base:** Switching the base of the web server technology from PHP to Python for security and feature integration reasons.
4. **User Interface (UI) Improvements:** Facilitating the use of the website through user interface style improvements.

Overall, this project represents a valuable advance in astronomical software that will facilitate both future modifications to the website and astronomical research going forward.