Outline for Senior Thesis

A. Table of Contents
    a. Introduction
    b. Motivation
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    d. Key Functions
    e. Data Tables
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B. Introduction
    a. Explanations of neutron stars, nucleosynthesis, r-process, supernovae, etc
    b. Explanations of necessary Atomic Physics concepts

C. Motivation
    a. Explain the factors that affect models of neutron star merger nucleosynthesis output, including atomic physics data
    b. Explain how many groups model NSM abundances but use varying atomic data

D. Procedure
    a. Skynet data and Saha equation
    b. Calculation of Charge state abundances
    c. Analysis of abundances
    d. How Skynet parameter variation affects abundance calculations

E. Key Functions
    a. Saha_mult class
    b. Ionization Generator function
    c. Temperature Evolution model functions
    d. Elemental and Charge State Abundance calculation function

F. Data Tables
    a. Display key data tables such as ionization energies, elemental abundances for Nd and Sm,etc

G. Data Analysis Procedures
    a. Explain how the charges state abundance are scrutinized and analyzed to reveal important info such as cutoff values

H. Results
    a. Explain what the calculated charge state abundances actually mean in the context of r-process or heavy element production due to mergers found in the universe

I. Importance to Bigger Picture and Other Work
    a. Compare data to other works
    b. Explain how this work helps reduce uncertainty in NSM models

J. Conclusion
    a. Restate basics on NSMs
    b. Discuss motivation
    c. Talk about basis of procedure
    d. Discuss results
    e. Future Work
        i. Make our models more precise
        ii. Test more atomic models and create light curves using calculated abundance data
        iii. Run experiments to uncover spectral data on key charge states and atoms

K. References