

# Tutorial: FAC for Intermediate Users

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In this tutorial, we will discuss practical usage of the Flexible Atomic Code (FAC) for intermediate users. Basic knowledge of atomic physics and plasma spectroscopy is assumed, but familiarity with FAC in particular is not required. The topics covered in the tutorial include:

- Download and installation.
- Atomic processes implemented in FAC.
- SFAC and PFAC interfaces.
- Handling FAC binary and ascii output files.
- Basic usage for simple atomic systems.
- Coupling atomic calculations and collisional radiative modeling.
- Advanced features: Many-body perturbation theory and R-Matrix.

We will follow the tutorial through several practical examples, both simple and more advanced. Simple examples will demonstrate the use of FAC in obtaining limited sets of atomic parameters, such as energy levels, radiative rates, and collisional cross sections. More complex examples will demonstrate the use of PFAC interface (via the Python scripting language) to generate large scale datasets, and use them as input to collisional radiative models for spectroscopic modeling applications.