

**ASTR 5110 Atomic and Molecular Processes Fall 2024. Problem Set 6. Due
Wed 16 Oct.**

1. Electronic configuration (30 points)

Give the terms, levels, and ordering in energy for the ground electronic configuration $1s^2 2s^2 2p^4$. What is the degeneracy (number of states) of each term, and of each level? Give your reasoning. What is the neutral atom with this electronic configuration? Draw a Grotrian diagram. Which lines are allowed or forbidden, and why? Find on the web the wavelengths of the infrared, optical, and ultraviolet lines connecting the levels, and mark them on your Grotrian diagram.