Abstract

Studies of FeLoBAL quasars aim to identify the physical causes of iron absorption lines. A sample specifically selected to study iron absorption also exhibits a strange mix of optical properties. In our study, we examine an 88-object sample at the same redshift, SNR, and luminosity, but lacking the iron absorption lines. We find that our sample comes from a different distribution than the original sample ($p=0.0964$). We will continue analysis of this sample by finding the Eddington ratios of the objects, which will provide further insight into the physical processes driving the optical properties.

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Optical Properties in Low Redshift FeLoBAL Quasars

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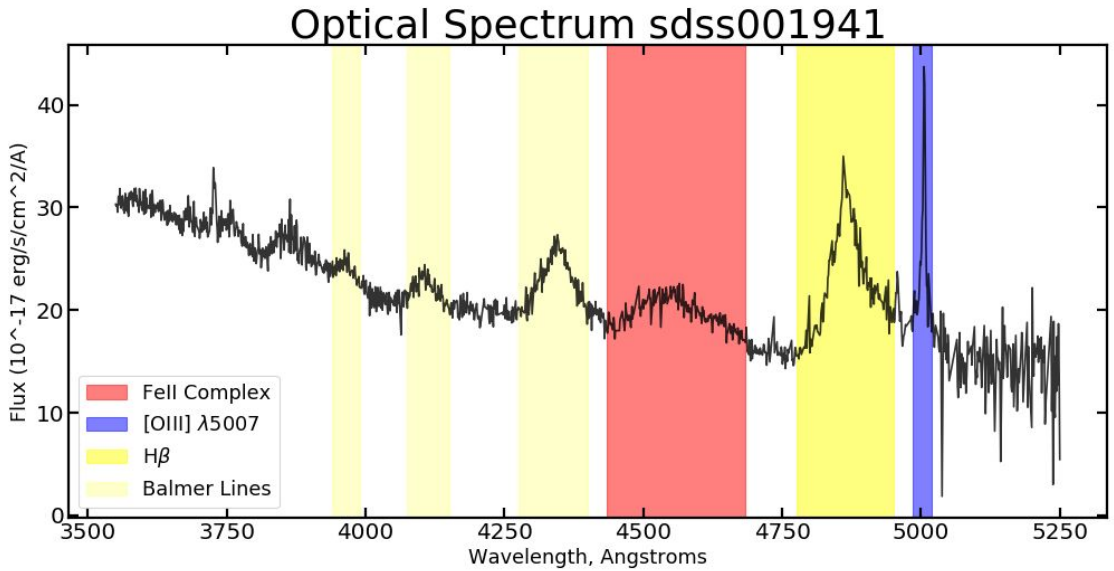
Motivation

- Known relationships between physical properties (black hole mass, accretion rate) and line strength.



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Motivation

- Prior work selected a sample to study FeII absorption lines.
- **Is the mix of optical properties peculiar enough that it is saying something about the types of quasars that host absorption lines?**

Equivalent Width

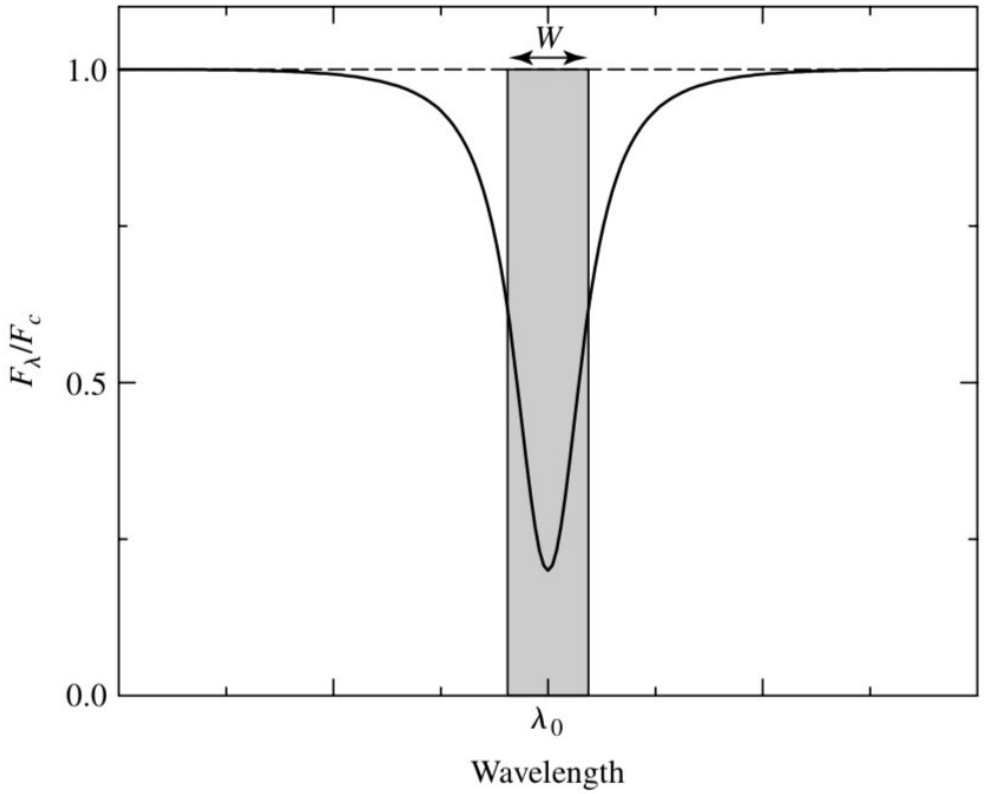
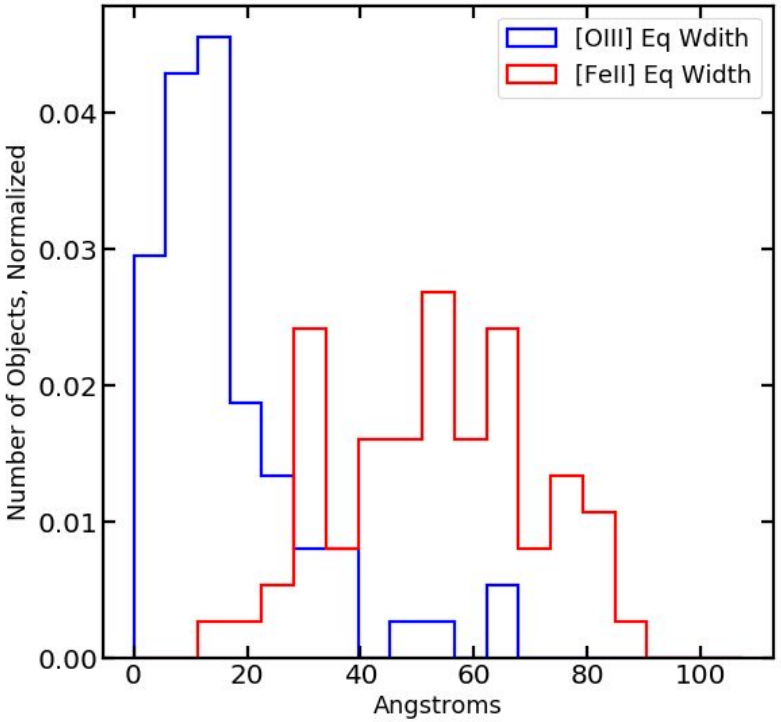
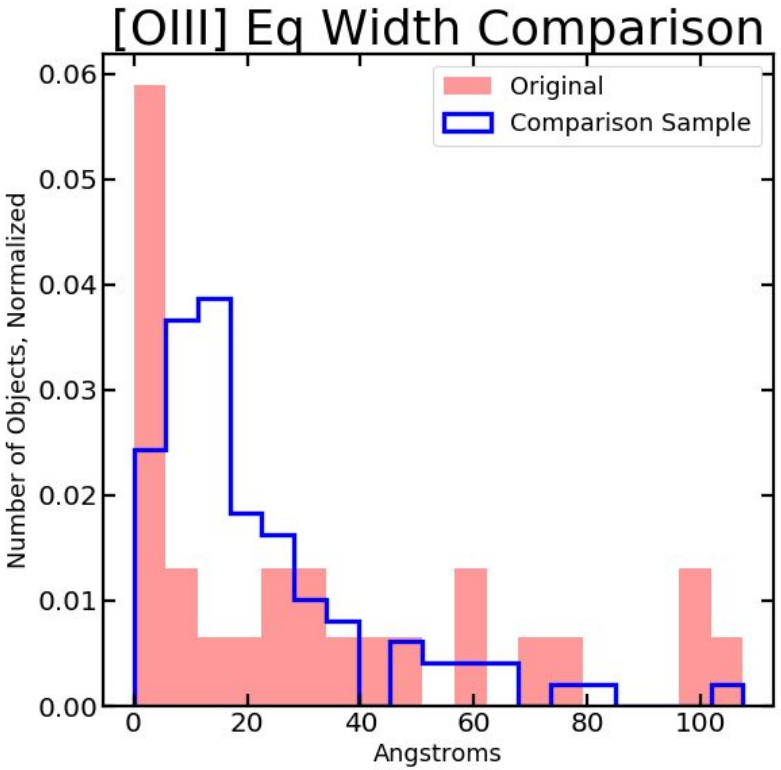
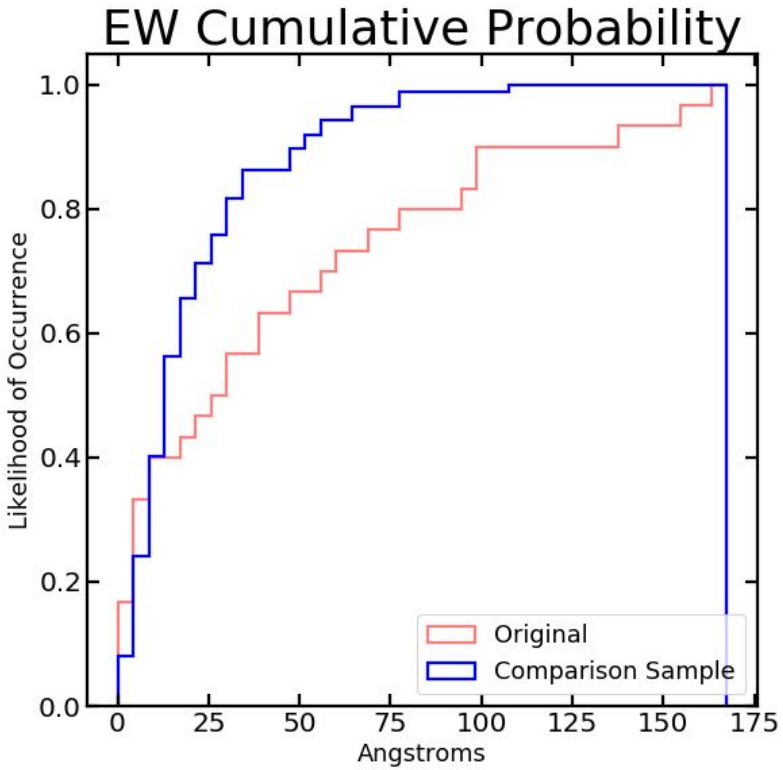


FIGURE 18 The profile of a typical spectral line.

Results







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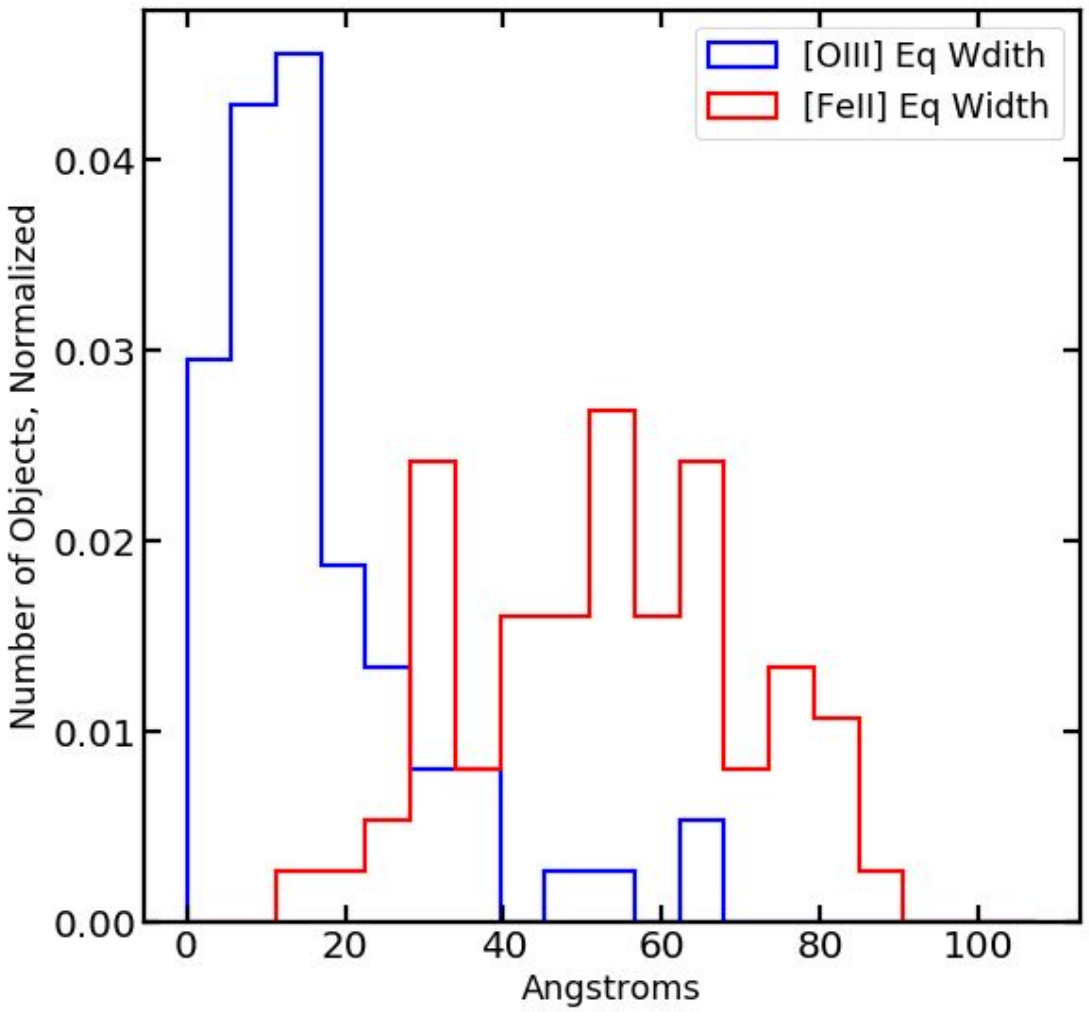

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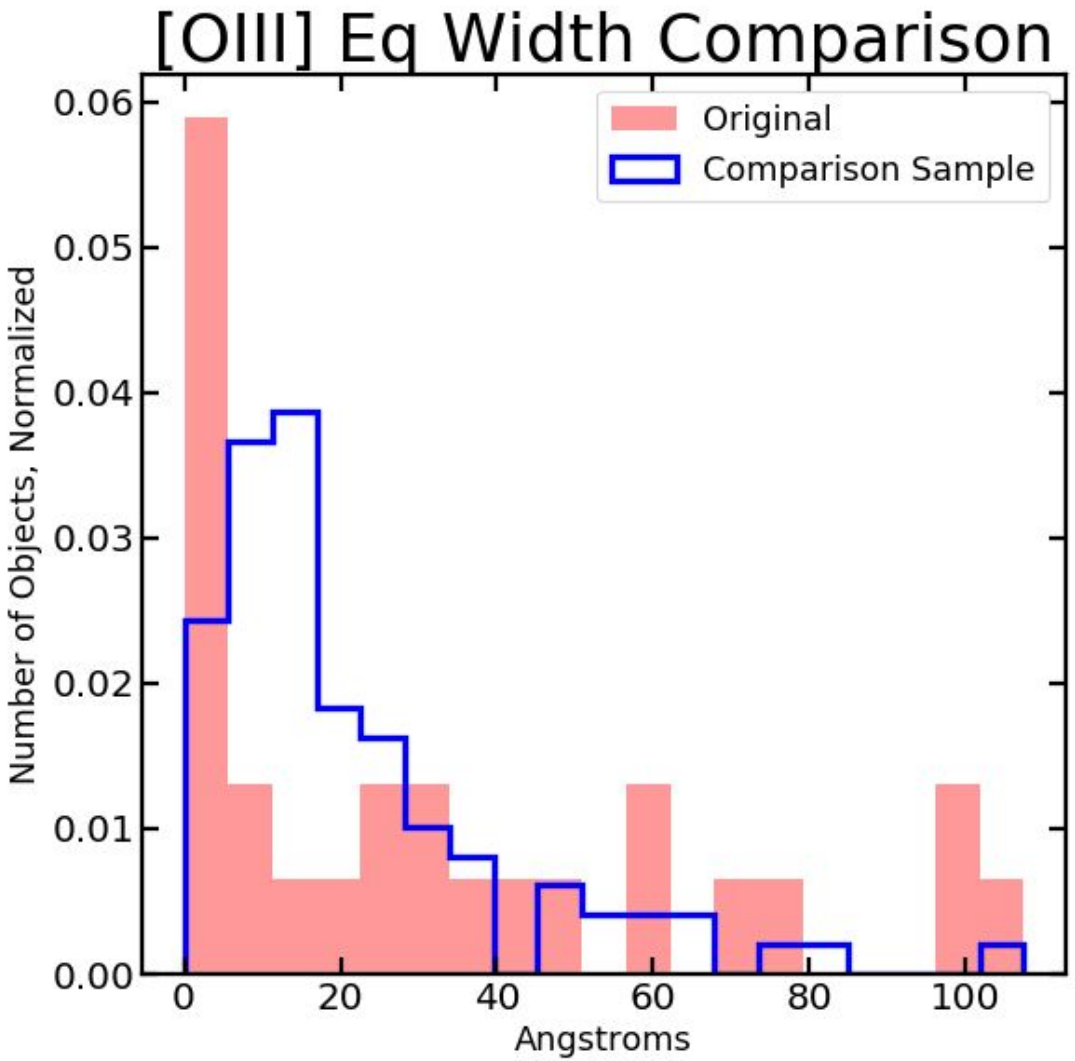

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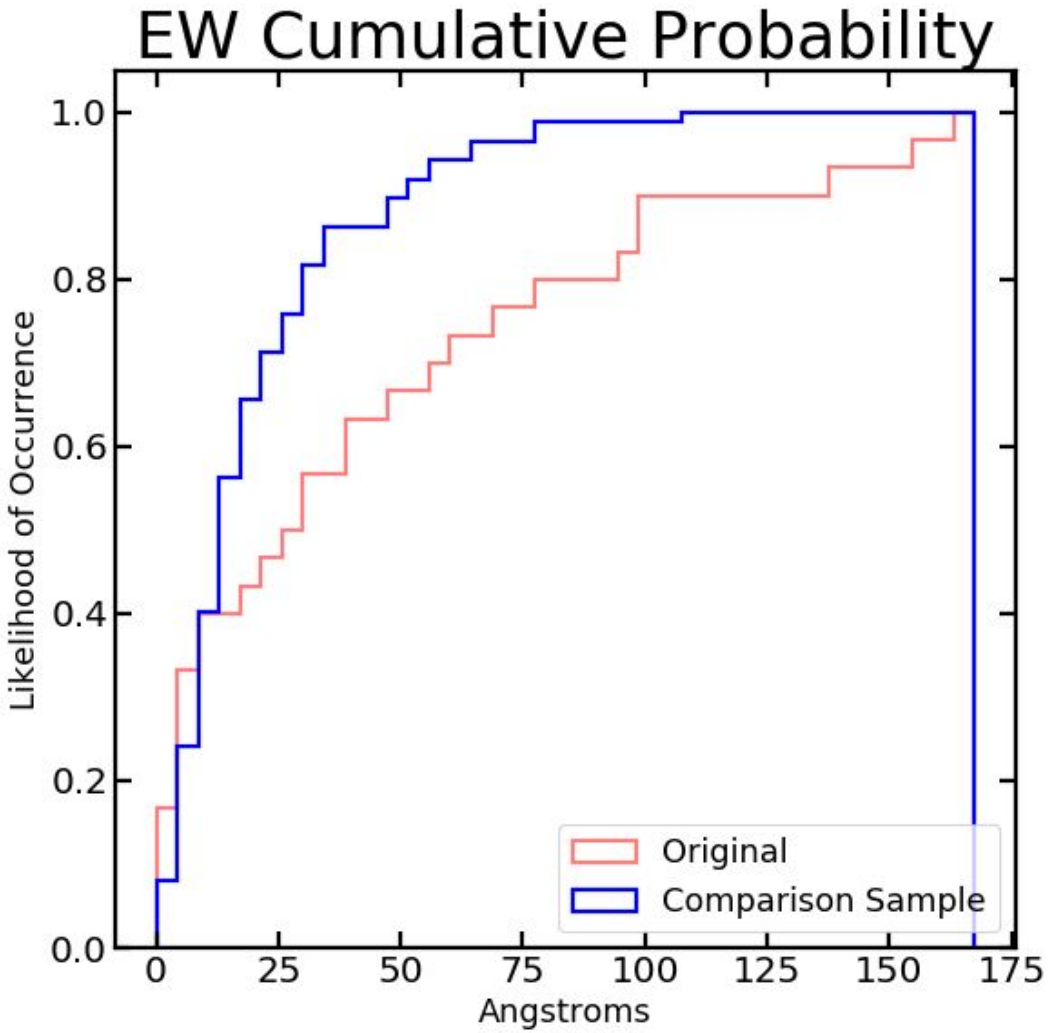

- Two sample ks test gives $p = 0.0964 > 0.05$.
- Samples drawn from **different** distributions.

Summary

- **Quasars with iron absorption lines come from a different distribution than those without.**
- Next we will find the black hole mass to determine if similar effects are seen in the Eddington ratio.
- Beginning this week, we will use SymBAL to analyze high-redshift FeLoBAL quasars.