

Resolving the Coronal Line Region of NGC 1068 by means of AO Gemini/NIFS Spectroscopy

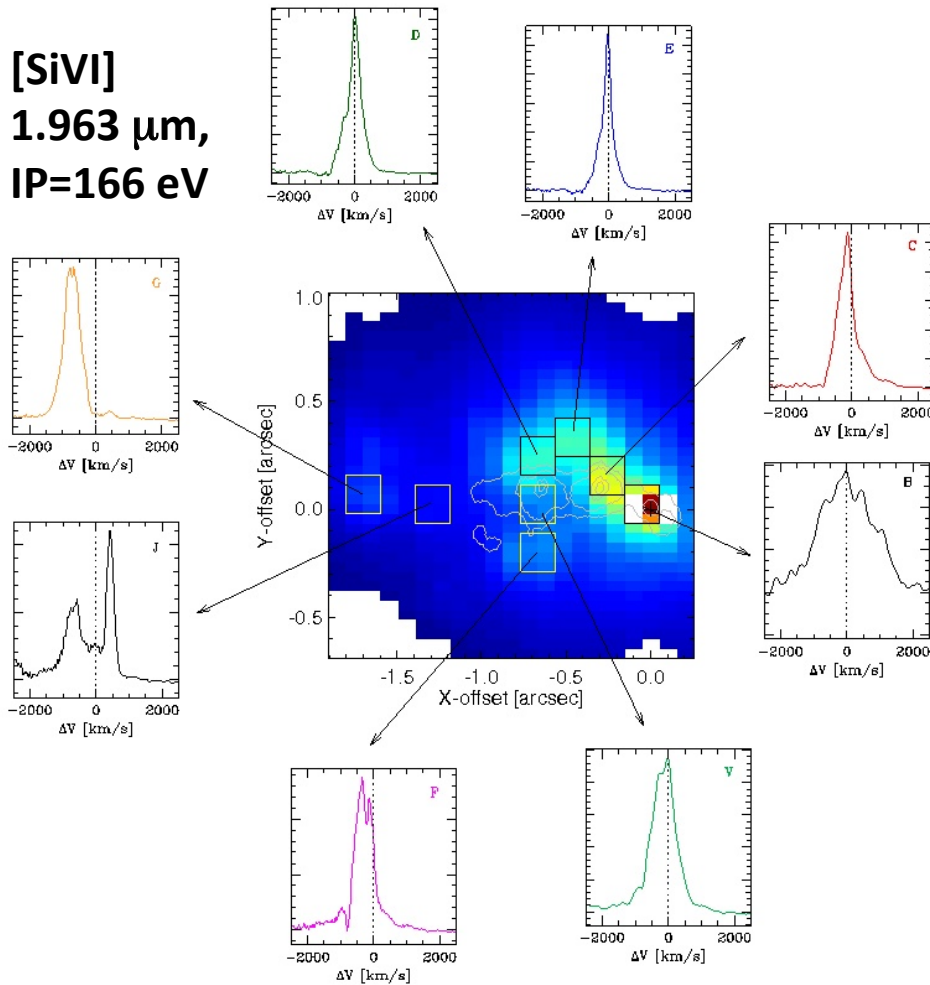
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THE MAIN PROBLEM AND QUESTIONS TO ANSWER

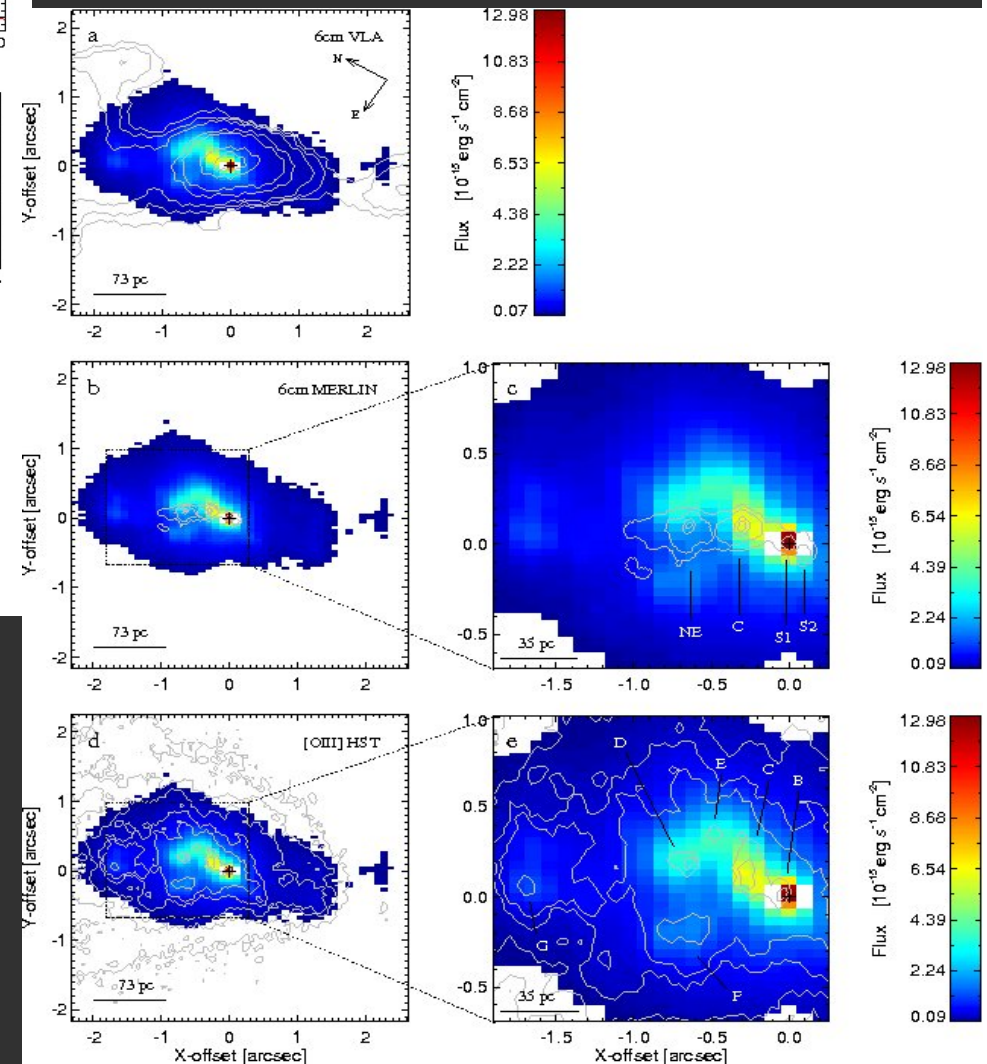
- The presence of coronal lines (CLs) in the spectra of AGNs indicates the existence of very energetic processes in the NLR associated with the nuclear activity.
- A clear picture that explains the mechanisms driving their formation is far from complete.
- Here, we aimed at:
 - Identifying the dominant mechanisms powering the coronal lines and studying the role of the radio-jet in shaping the morphology and kinematics of the CLR.

**[SiVI]
1.963 μm ,
IP=166 eV**

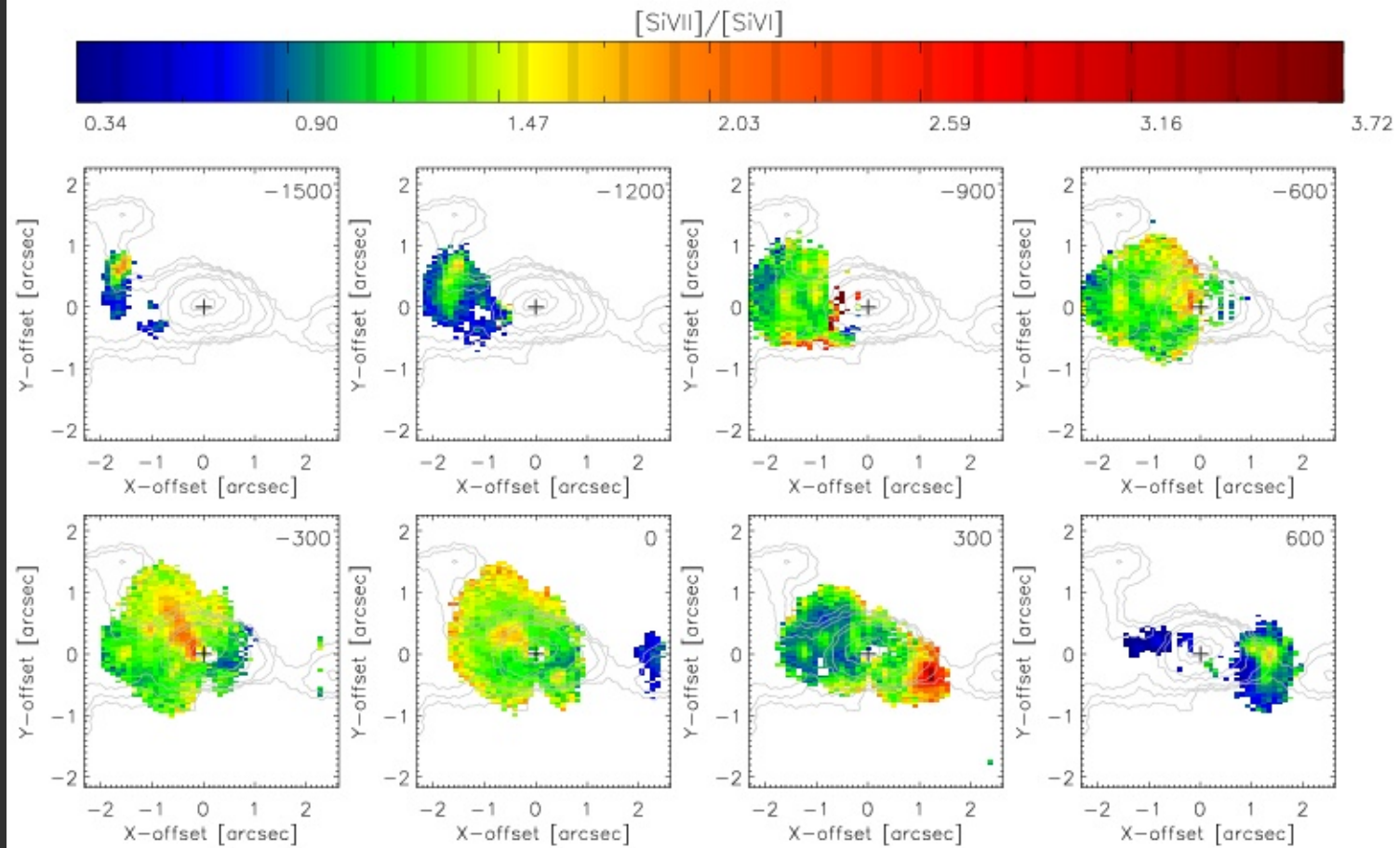


The line profiles are rather intricate.
Similar results found by Muller-Sánchez
et al. (2011).

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Excellent match between NIR, radio & [OIII] HST emission. Shocks should play a fundamental role at locations where the radio-jet interacts with the ambient gas. Other CLs in the NIR have similar behavior.



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Complex ionization structure. The observed values are not easily explained by photoionization by a central source. Models taking into account the effects of shocks (Viegas & Contini 2001; Allen et al. 2008) reproduce the high values of $[\text{Si VII}]/[\text{Si VI}]$ observed mostly in regions close to the radio-jet.

Final Remark

The richness and complexity of the structures we observe, both in terms of velocity fields and emission-line ratios is remarkable. The use of IFU spectroscopy + AO is essential in order to map the circumnuclear environment of nearby AGN, to disentangle the effects of photoionization and shocks on emission line properties, feeding/feedback mechanisms and to study the effects of radio jets on the gaseous environment of these sources.