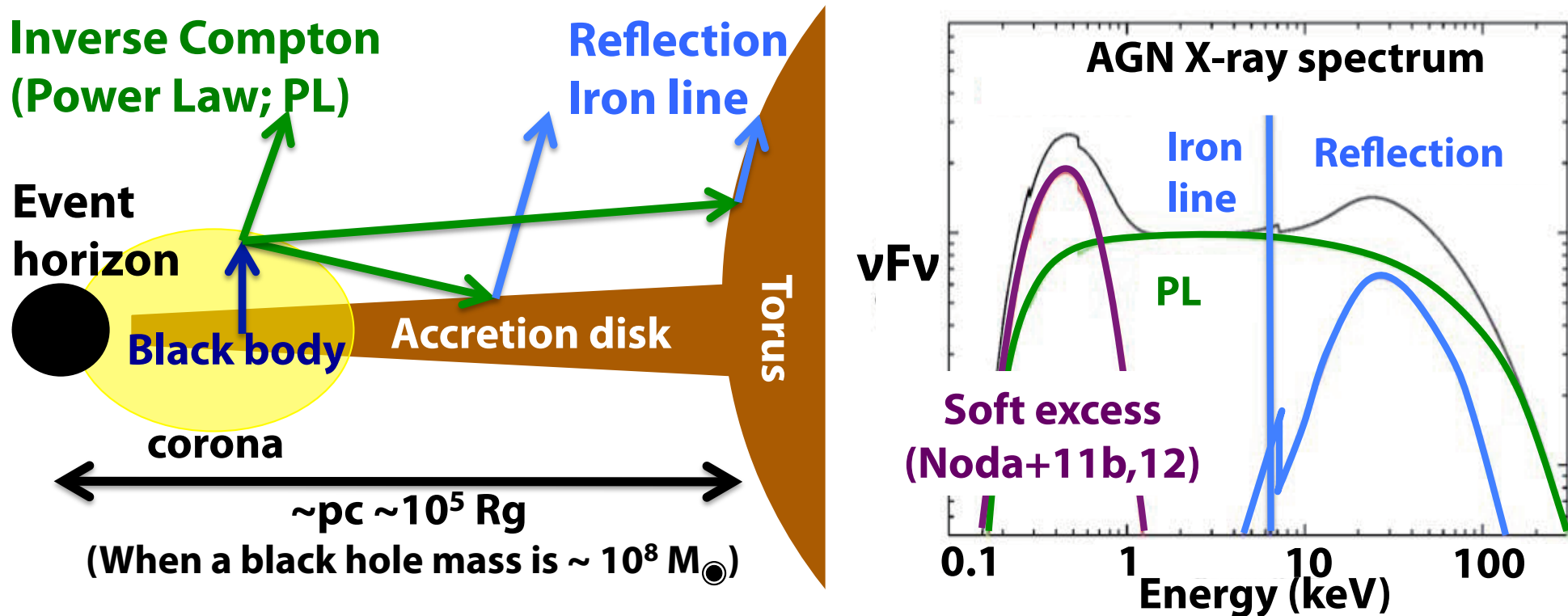


# **The Origin of Soft X-ray Excess in Active Galactic Nuclei**

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# The general picture of a central engine of AGNs



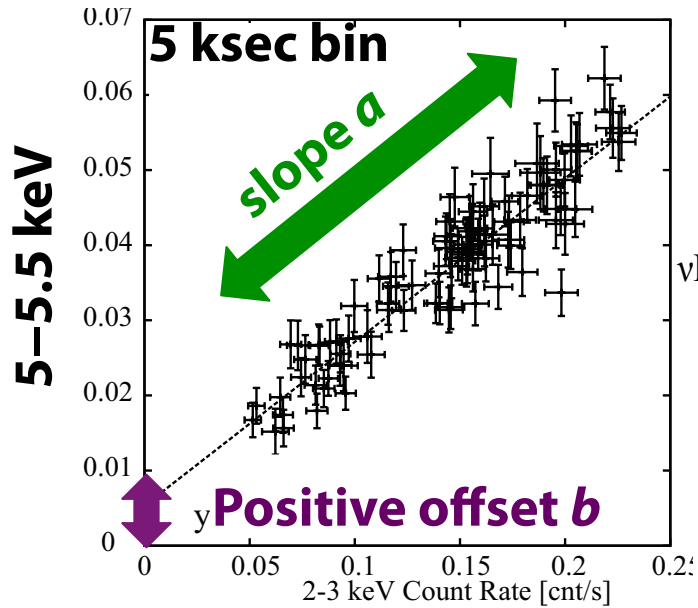
A primary emission in X-ray signals from AGNs has been assumed to be a single PL, based on an assumption that a Compton corona is single and uniform.

→ Too simple to explain a physical condition near a super massive black hole.

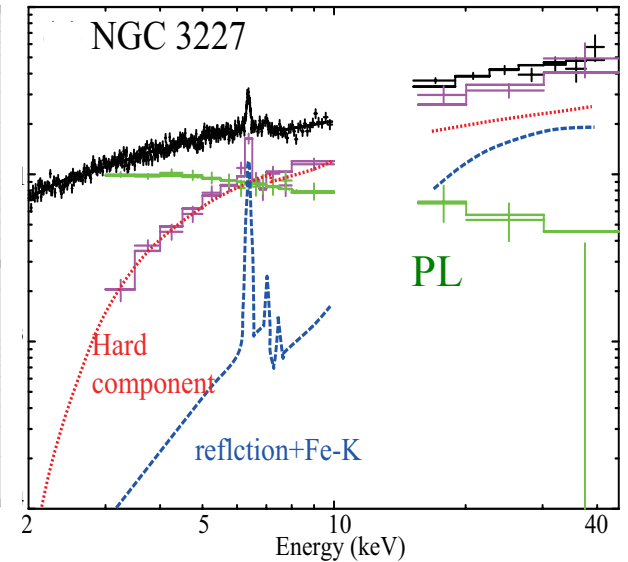
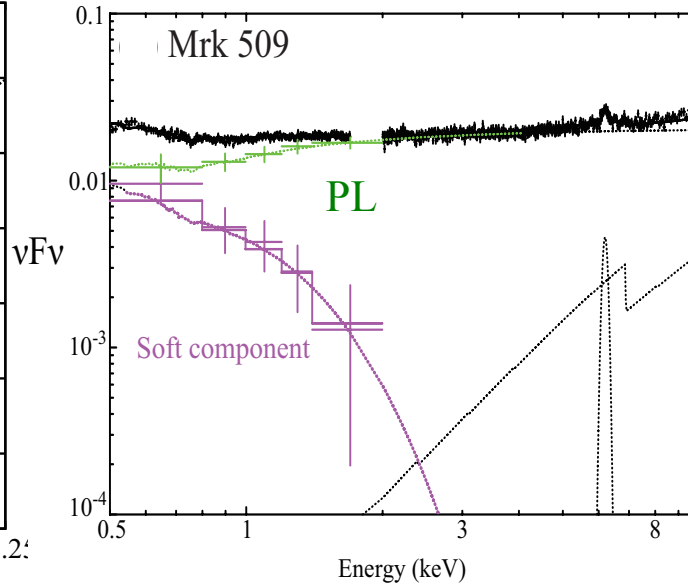
We focused on the soft (and hard) X-ray excess structures in a X-ray signal of AGNs, with a novel timing method which we developed.

# model-independent Spectral decomposition

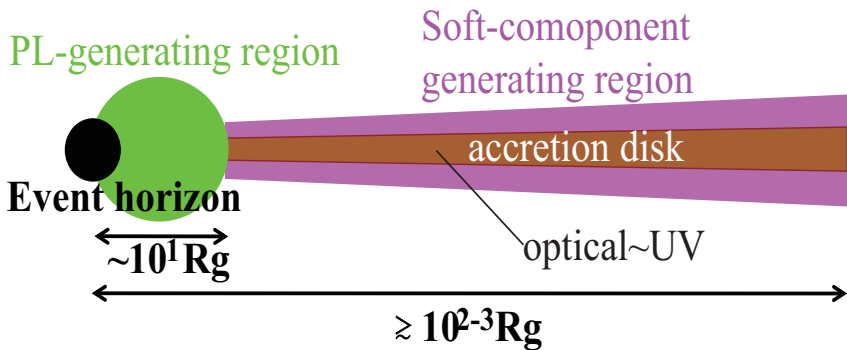
Divided 3–45 keV band into 16 finer bands, and made Count-Count Plots (CCPs).  
 All the CCPs were consistent with a **linear correlation  $y=ax+b$** .



2–3 keV count rate



Succeeded in decomposing into a **variable** and **stable** component model-independently!



The soft and hard X-ray excesses are possibly formed by primary continua other than the PL (presumably multiple thermal Comptons).  
 → Inverse of the previous assumption.