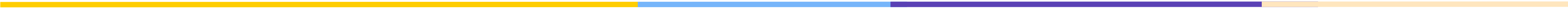






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# Number Density Analysis of the Little Red Dots



Siyi Zhao (赵思逸)

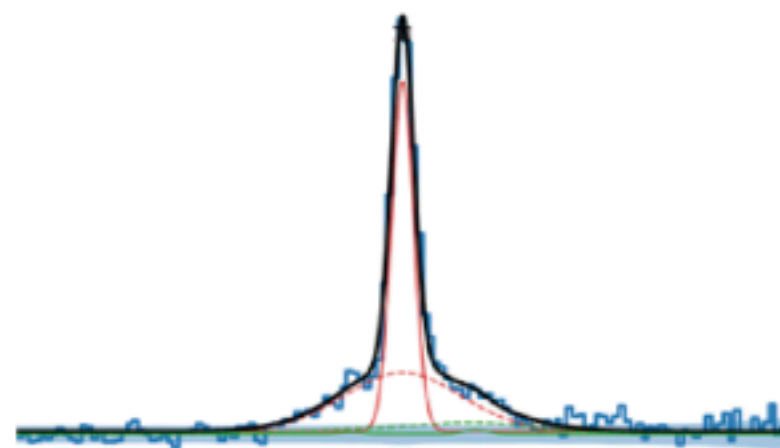
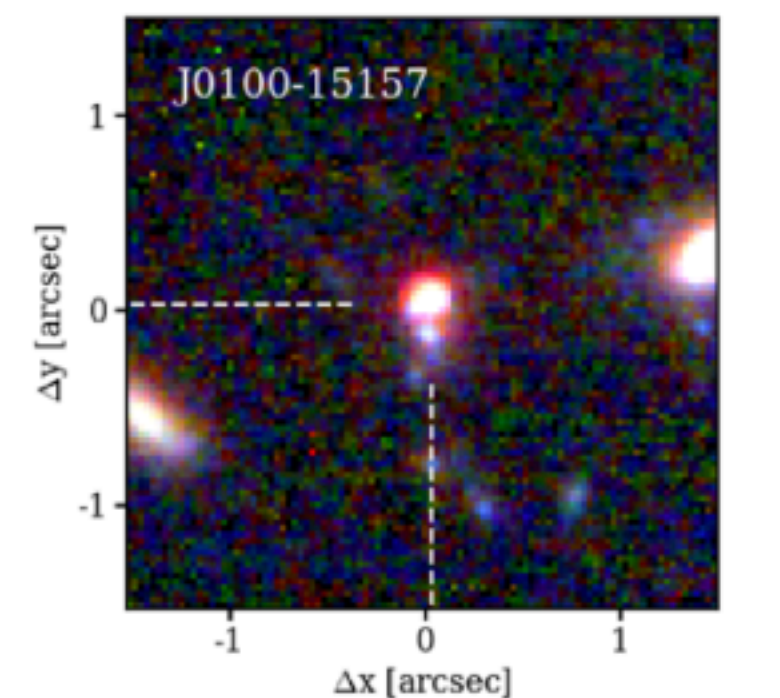
2024.5.10

@ DoA Student Seminar



# The Little Red Dots (LRDs): A Simple Model

1: SF dominated

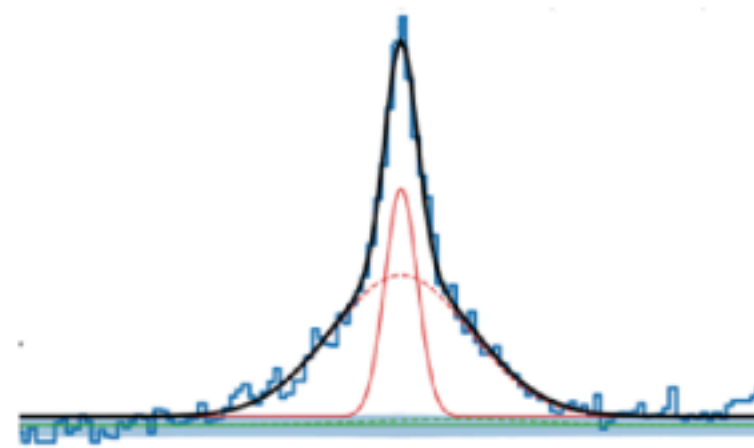
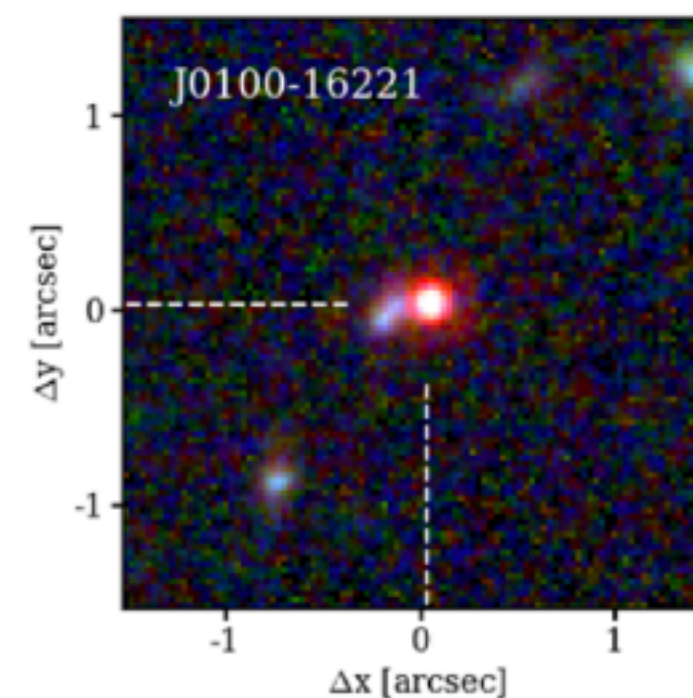


$$M_{\text{BH}} \sim 10^7 M_{\odot}$$

$$\text{VFWHM}_{\text{broad}} \sim 1500 \text{ km s}^{-1}$$

$$L_{\text{broad}}/L_{\text{Tot}} \sim 0.2$$

2: Transition into AGN

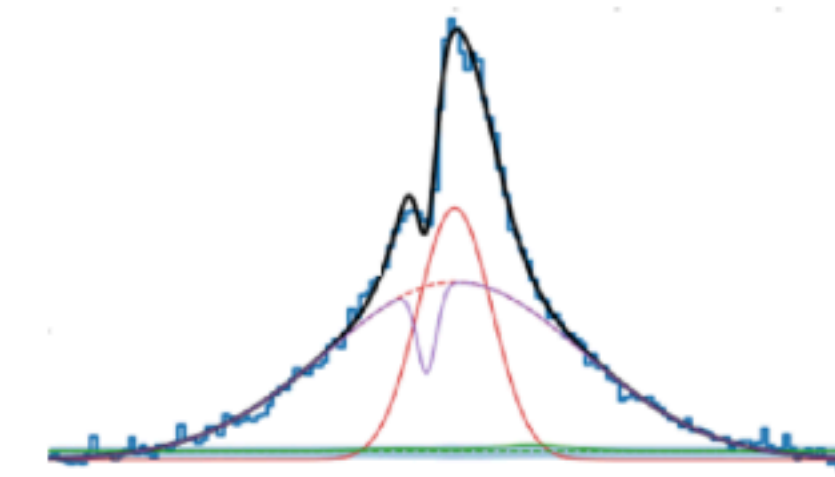
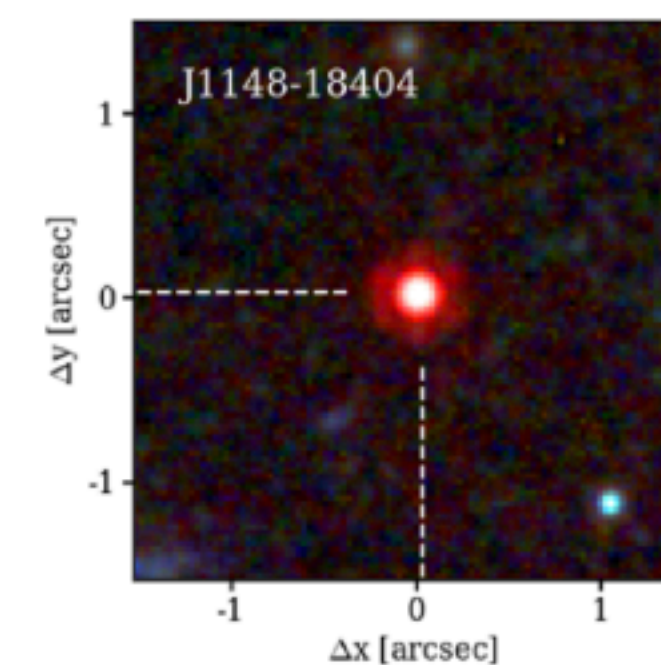


$$M_{\text{BH}} \sim 5 \times 10^7 M_{\odot}$$

$$\text{VFWHM}_{\text{broad}} \sim 2000 \text{ km s}^{-1}$$

$$L_{\text{broad}}/L_{\text{Tot}} \sim 0.5$$

3: Dusty AGN dominates



$$M_{\text{BH}} \sim 2 \times 10^8 M_{\odot}$$

$$\text{VFWHM}_{\text{broad}} \sim 3500 \text{ km s}^{-1}$$

$$L_{\text{broad}}/L_{\text{Tot}} \sim 0.8$$