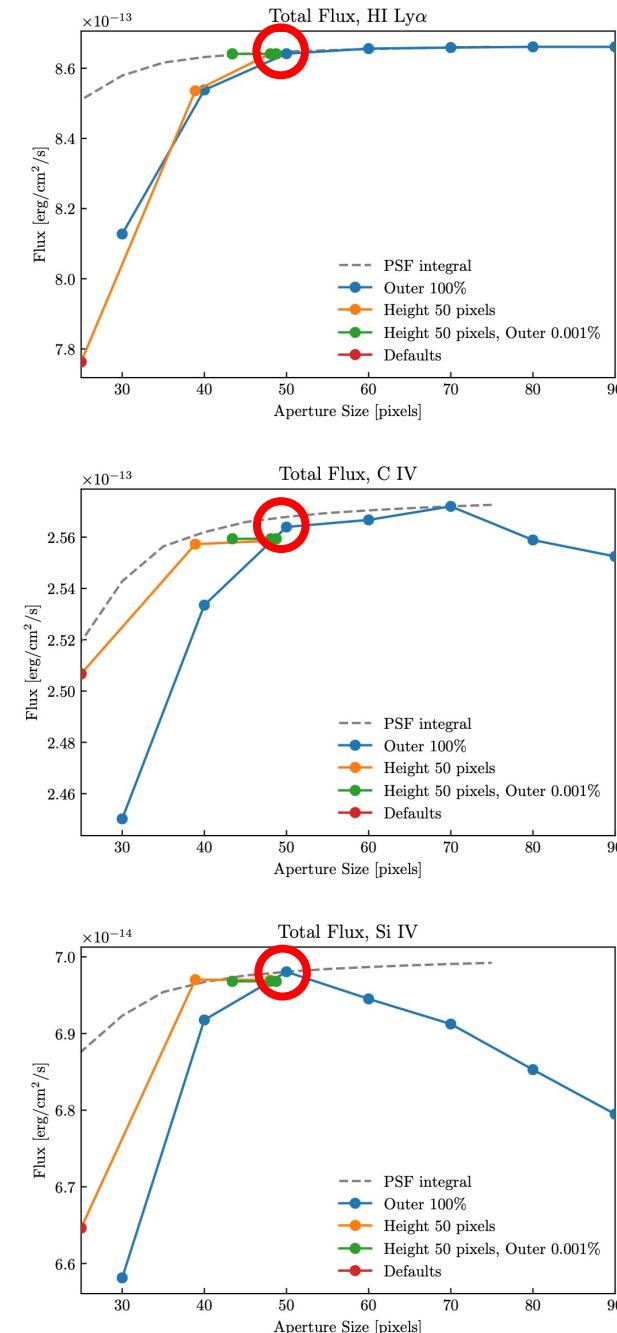
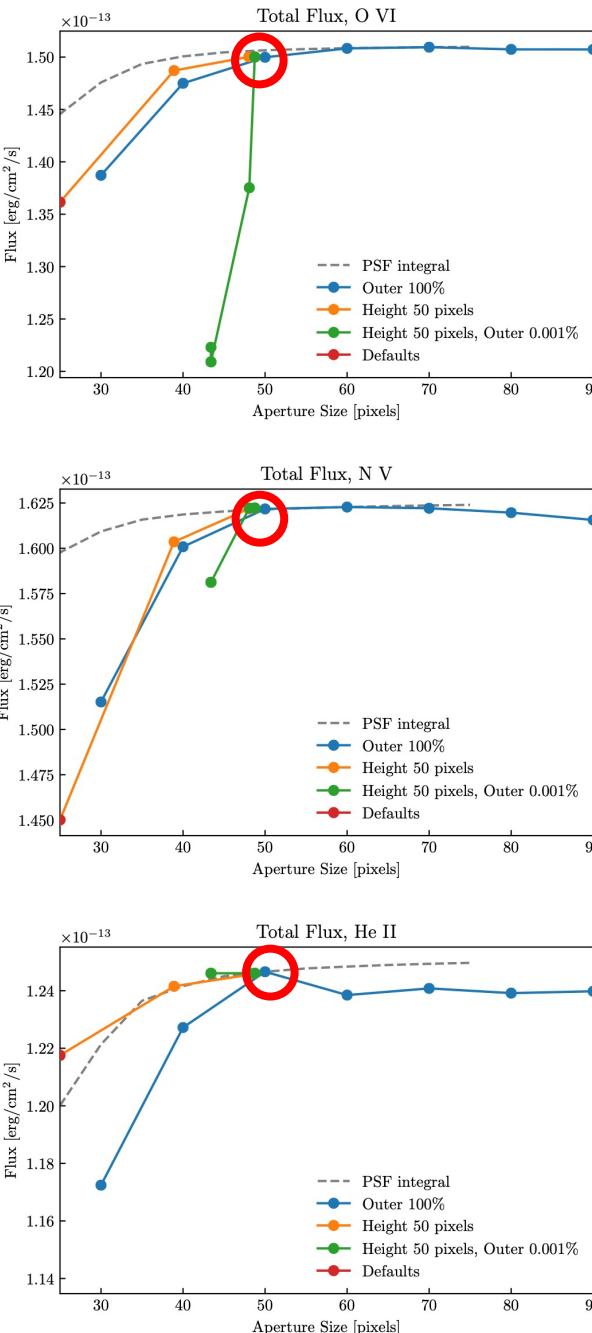


Aperture Size Optimization

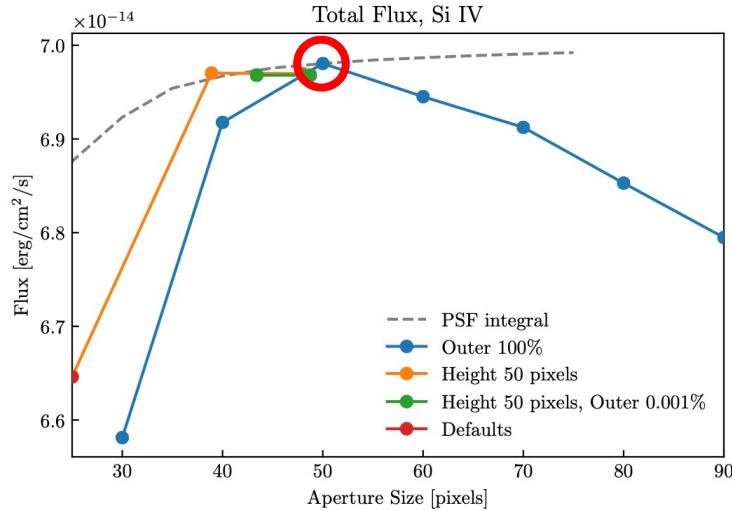
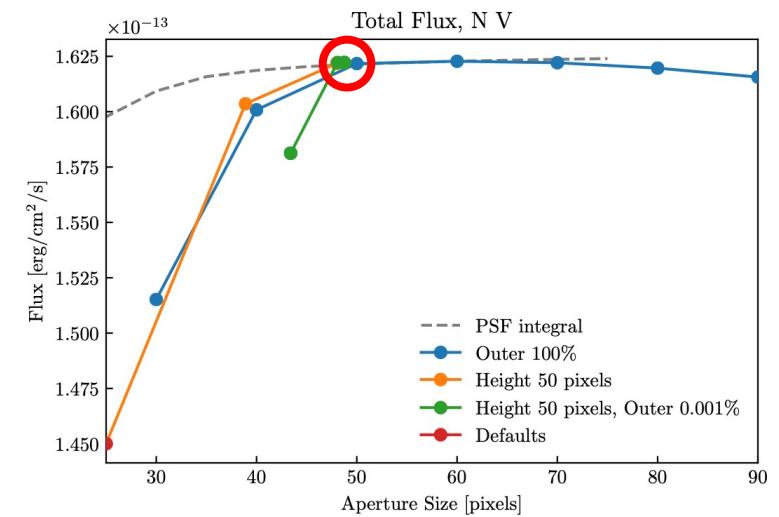
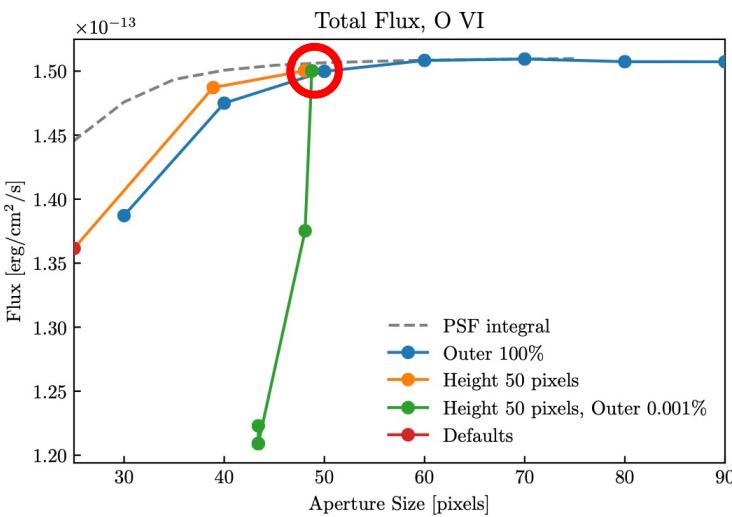
Jean J. Somalwar

Nucleus

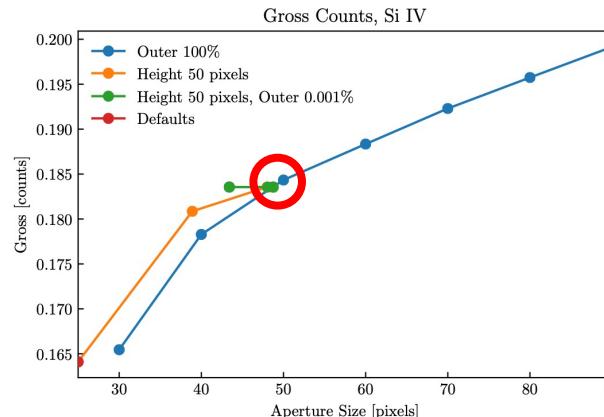
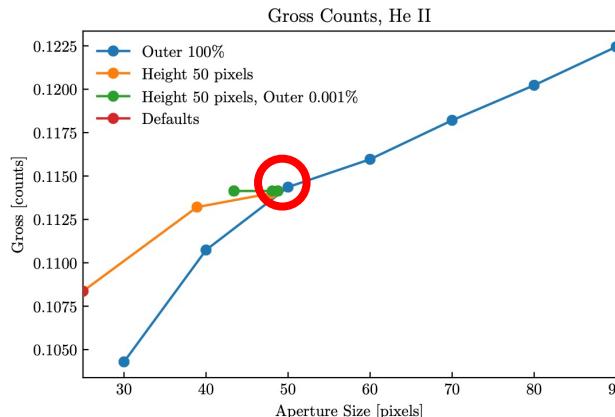
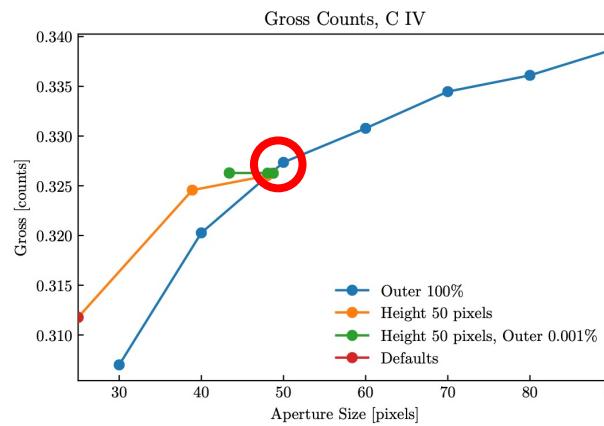
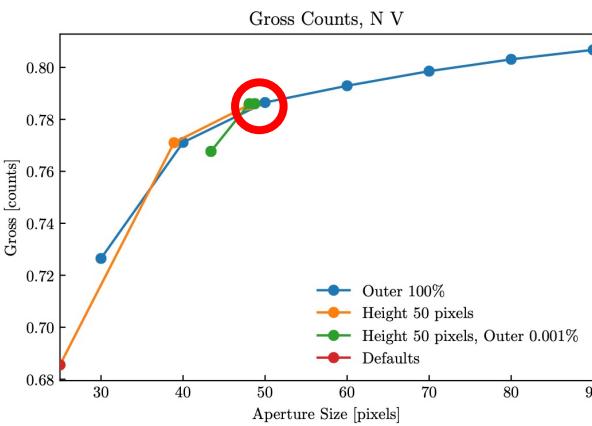
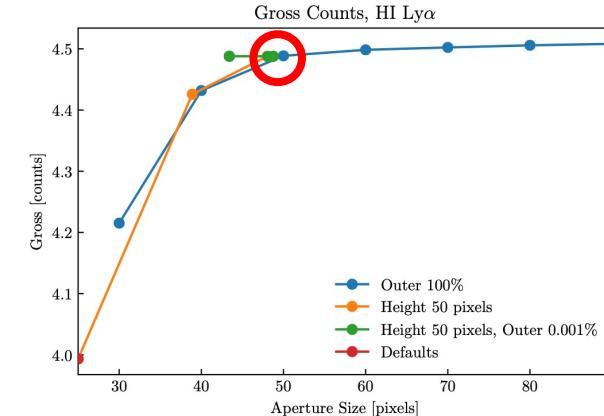
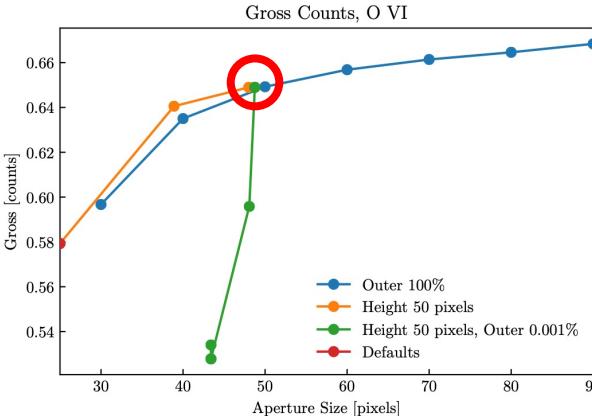
- Nucleus, line flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- **Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)**



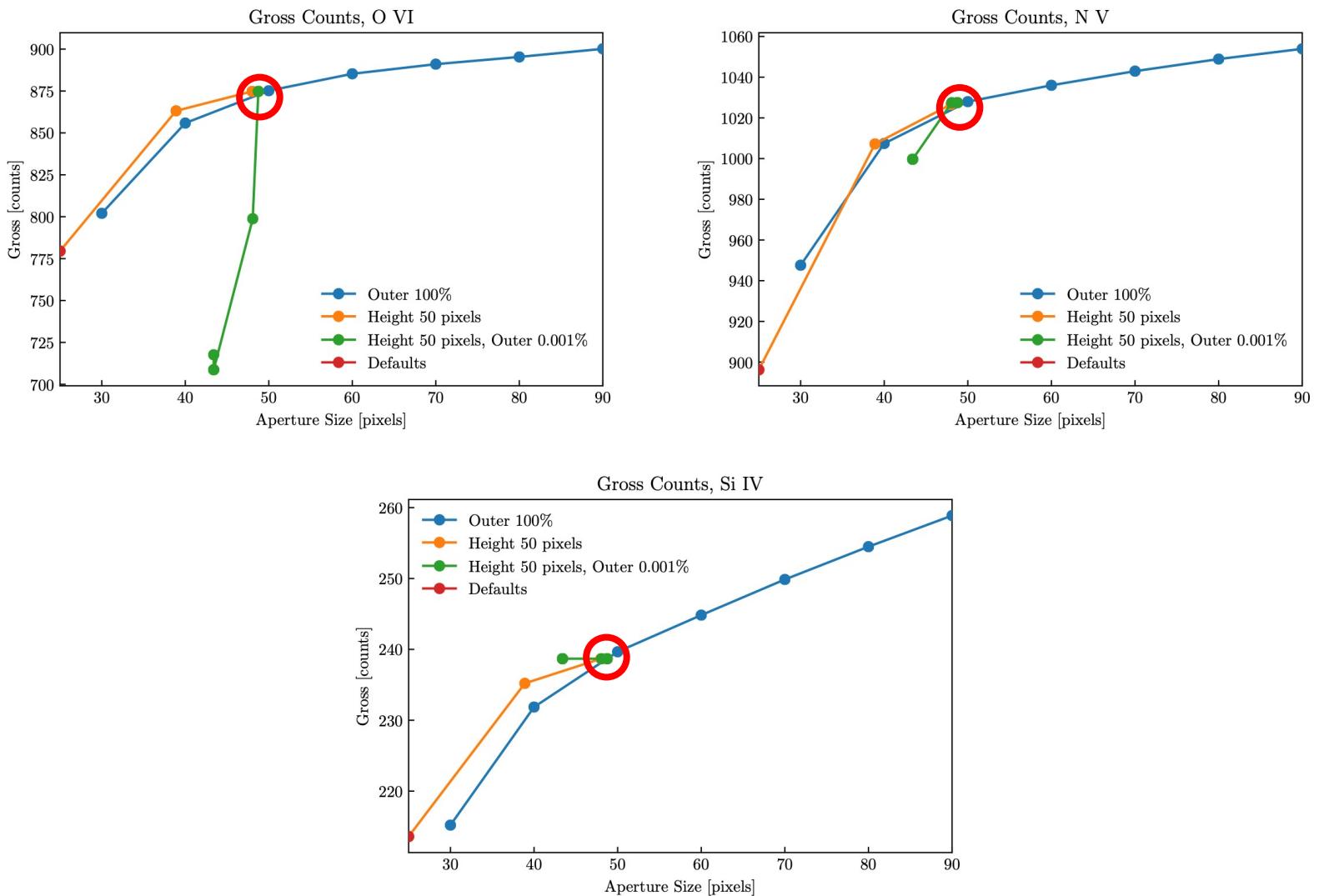
- Nucleus, continuum flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)



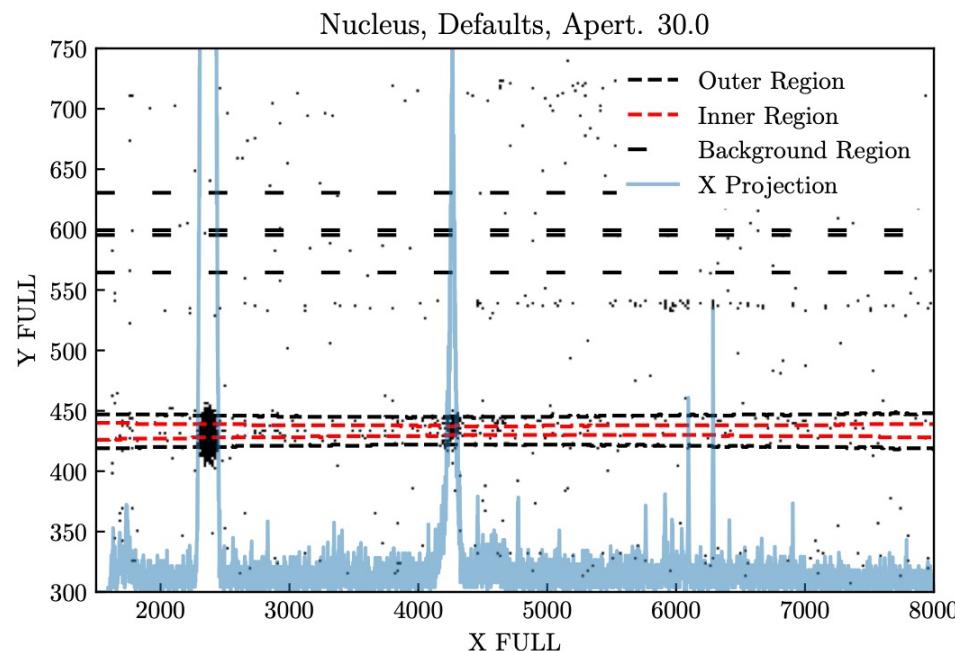
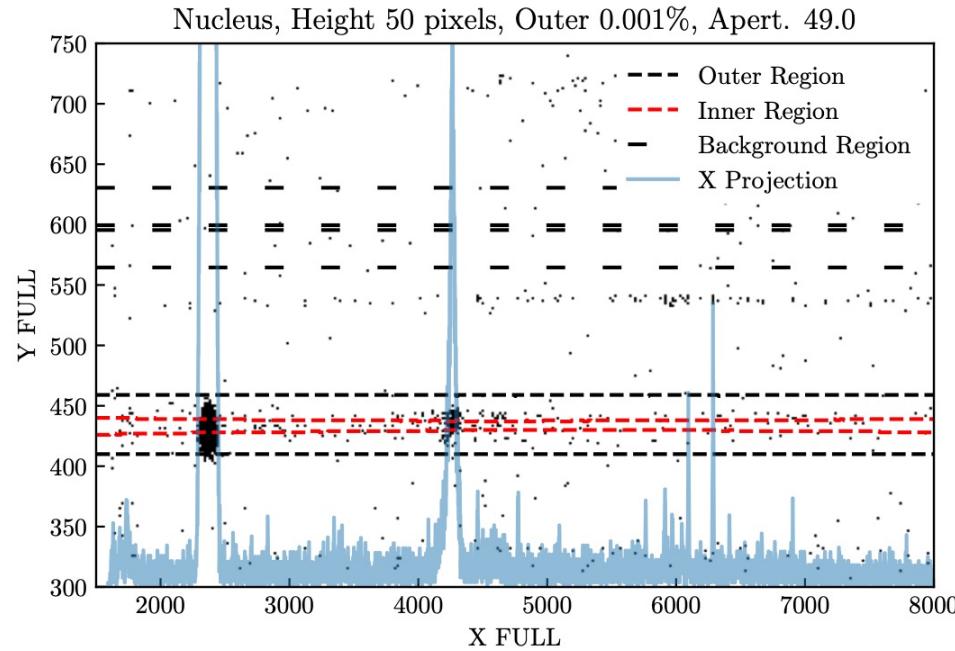
- Nucleus, line counts (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- **Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)**



- Nucleus, continuum flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)

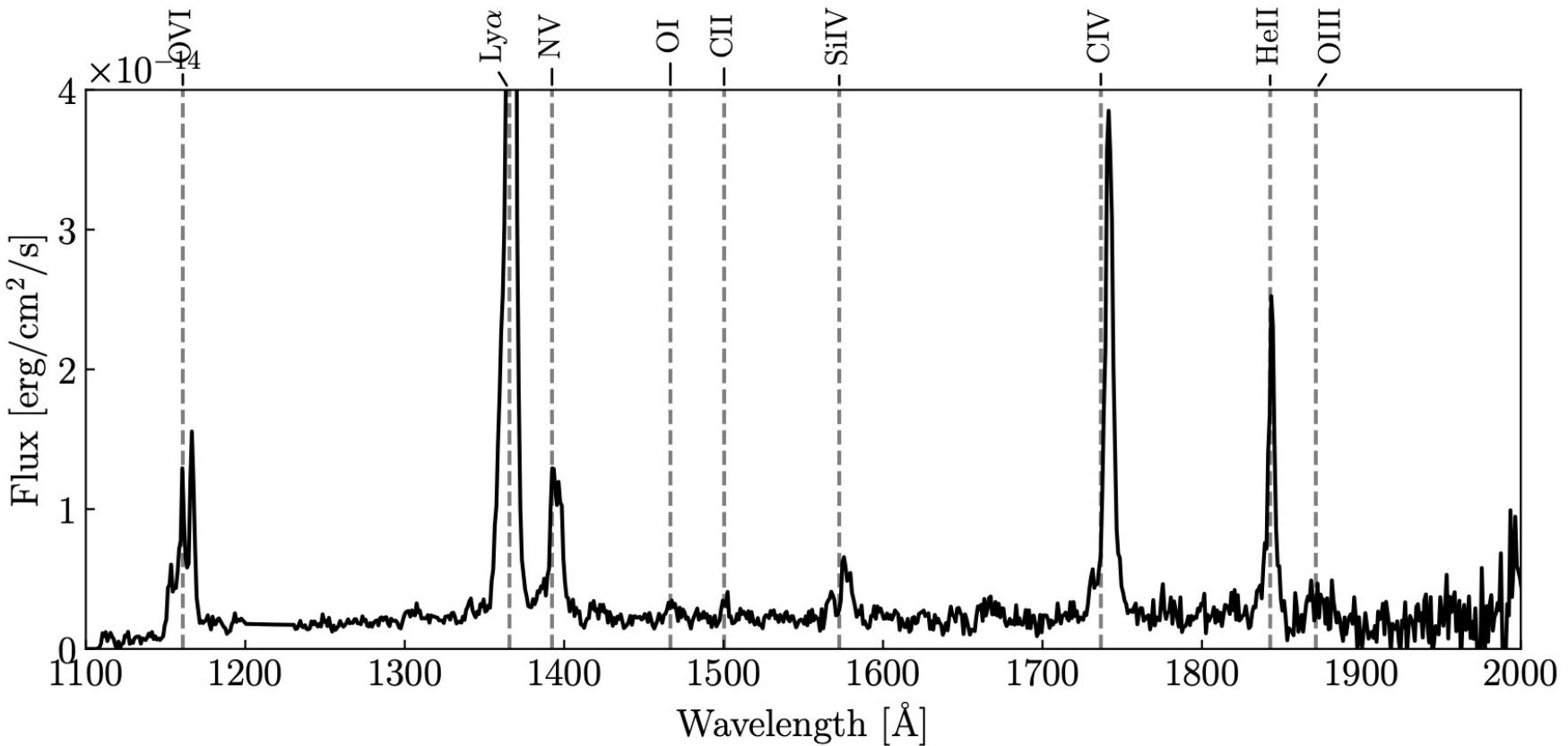


- 2D Plots – Upper = new optimum aperture, lower = defaults
- Black points – data
- Loosely dashed lines – background regions
- Dashed lines – source extraction regions (red = inner, black = outer)
- Blue spectrum – x projection of black points



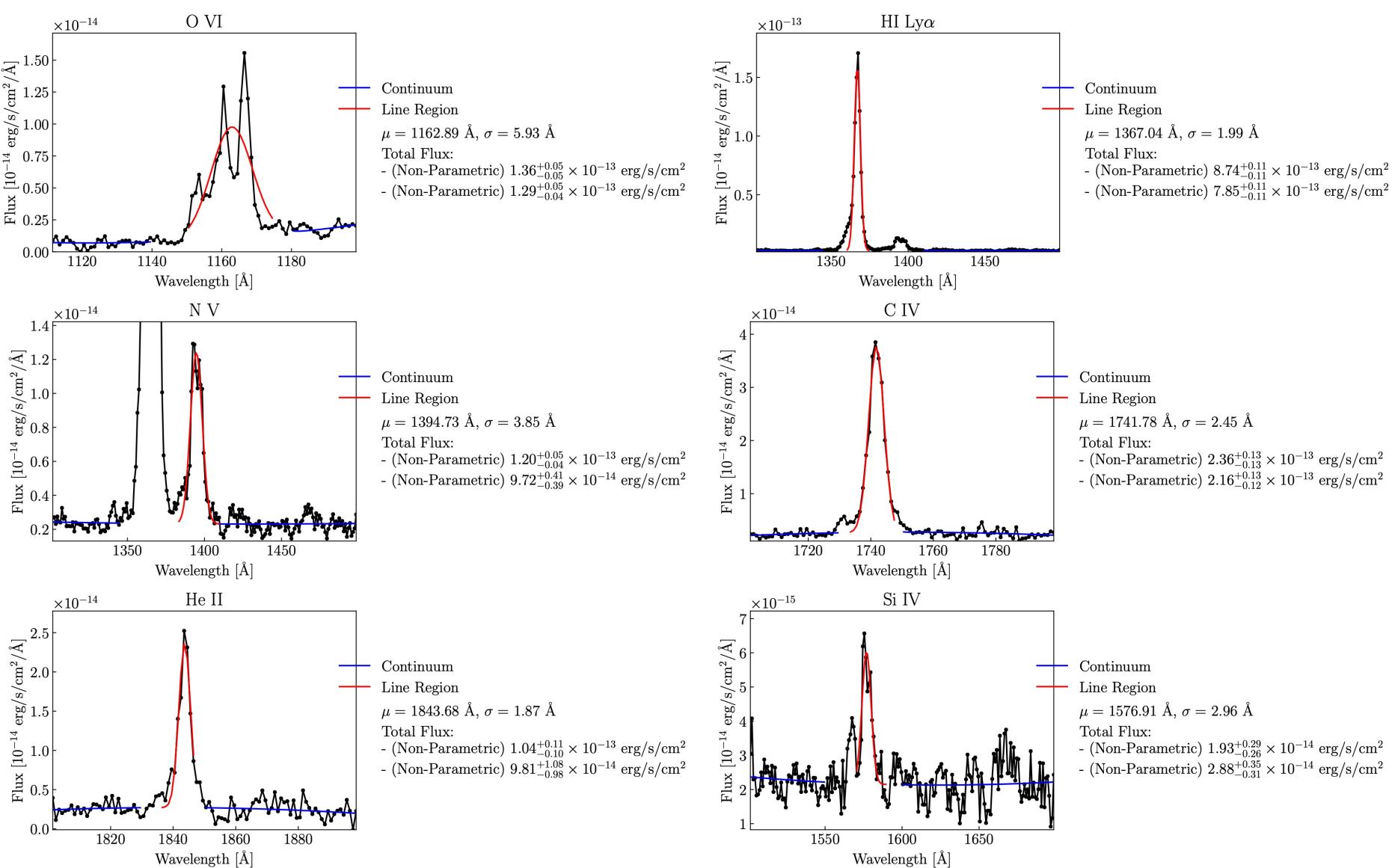
Final Plots

- Nucleus spectrum
- TWOZONE settings from aperture optimization



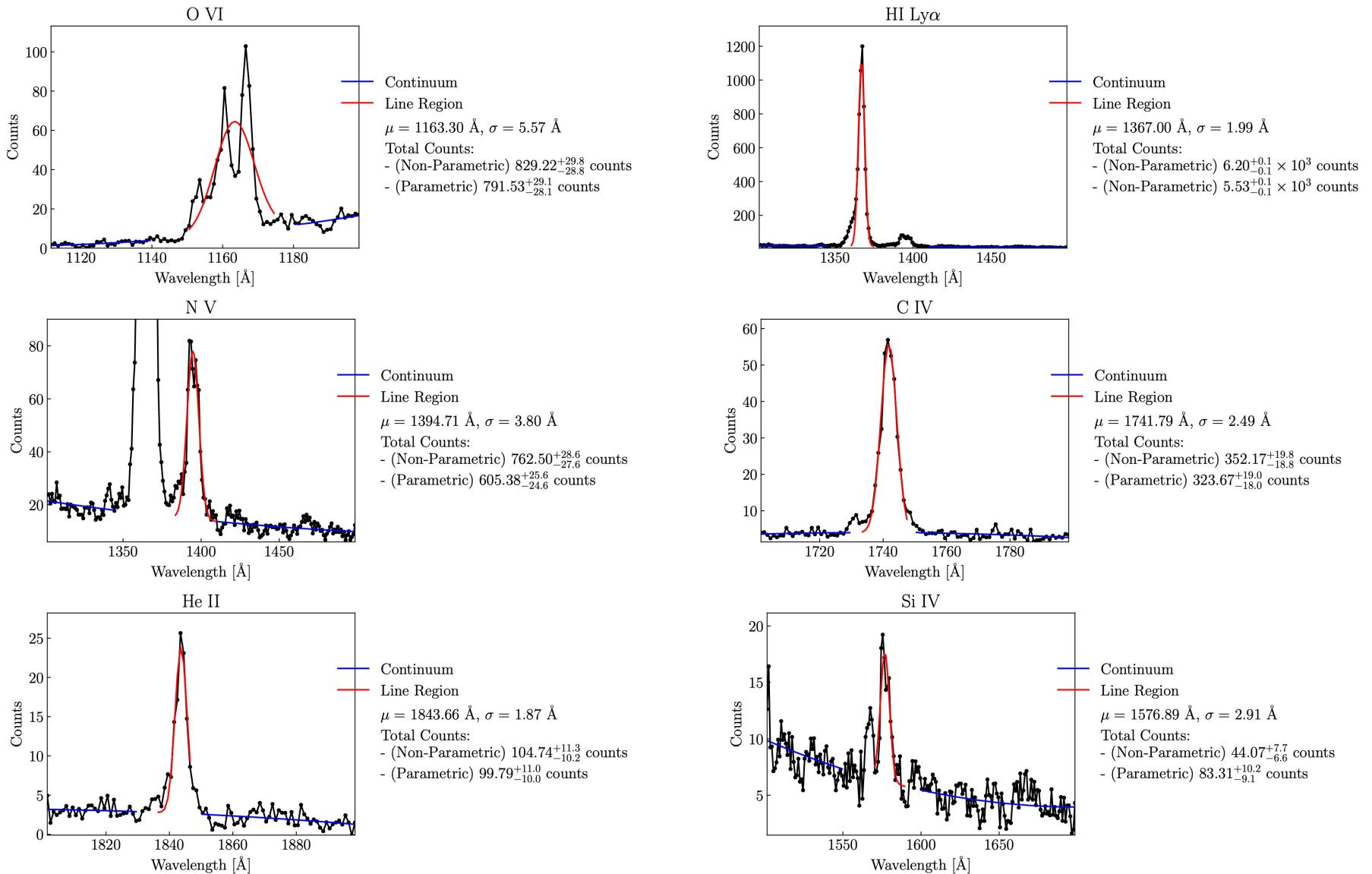
Final Plots

- Nucleus Line Fluxes w fits
- TWOZONE settings from aperture optimization



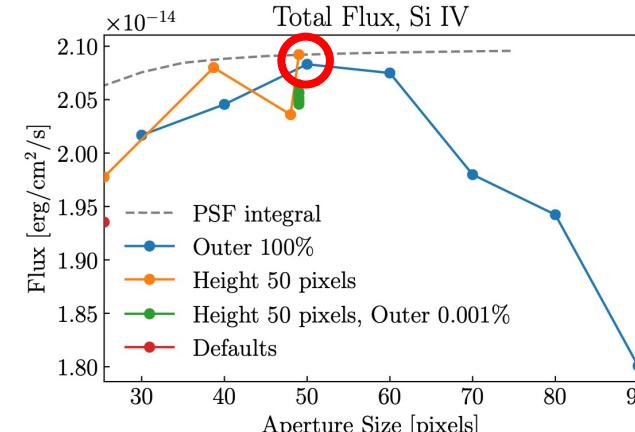
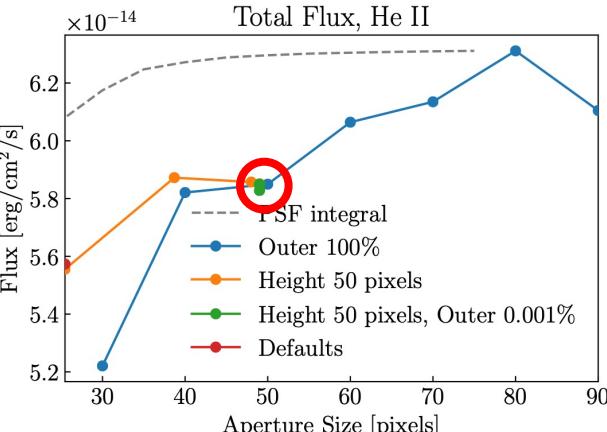
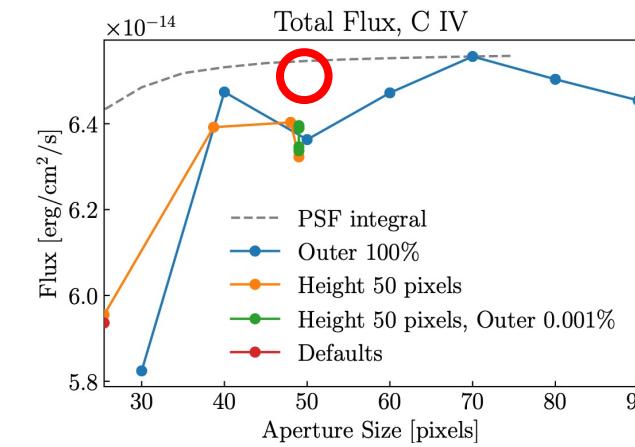
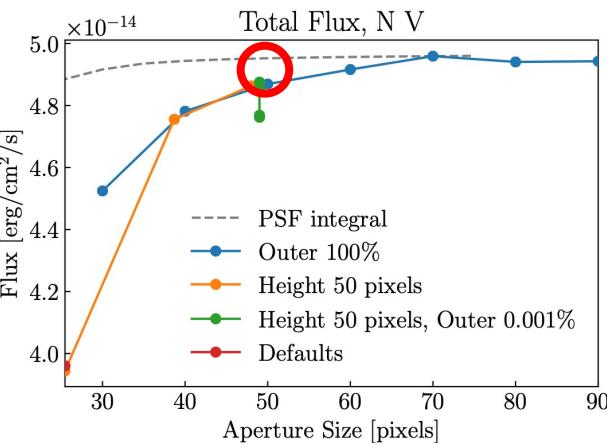
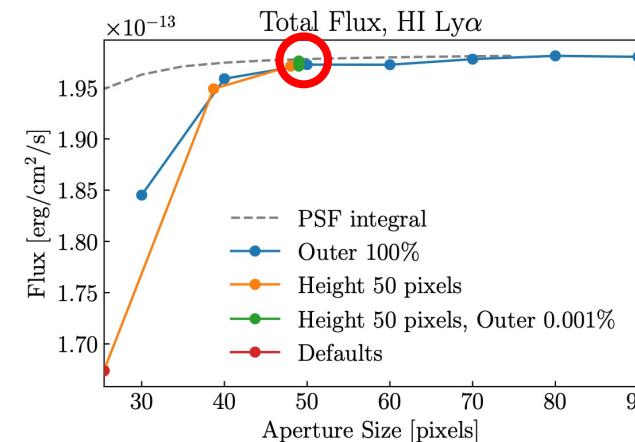
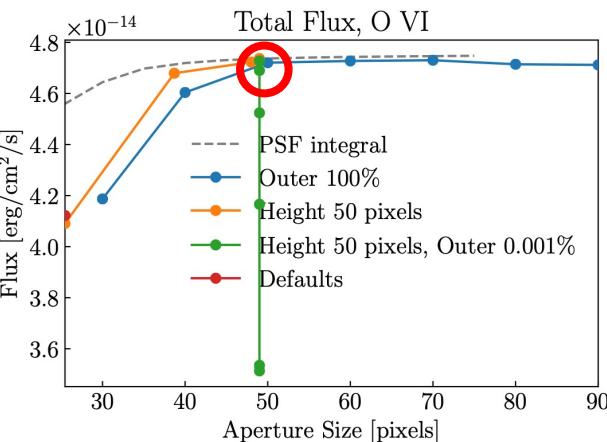
Final Plots

- Nucleus Line Counts w fits
- TWOZONE settings from aperture optimization

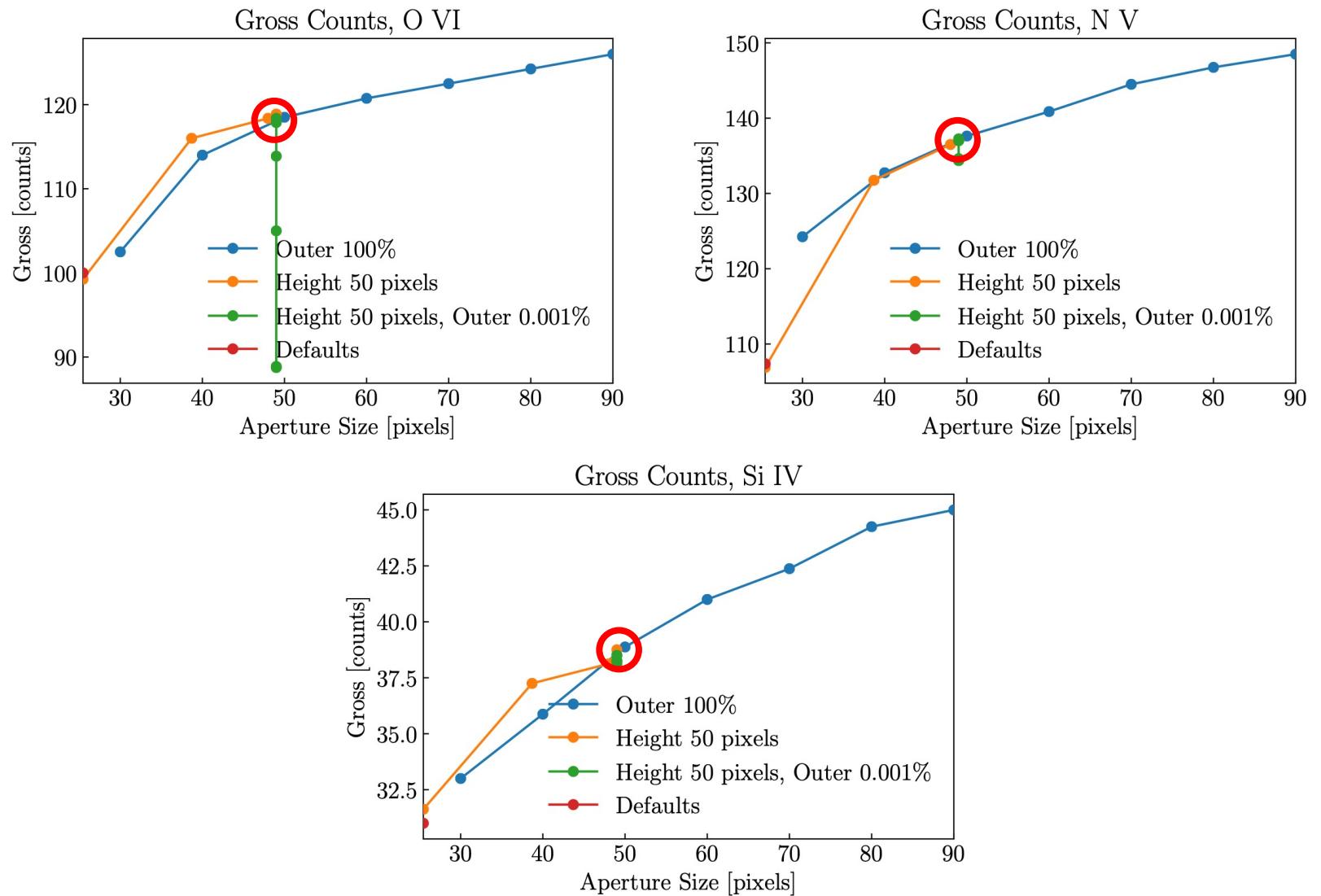


Bubble

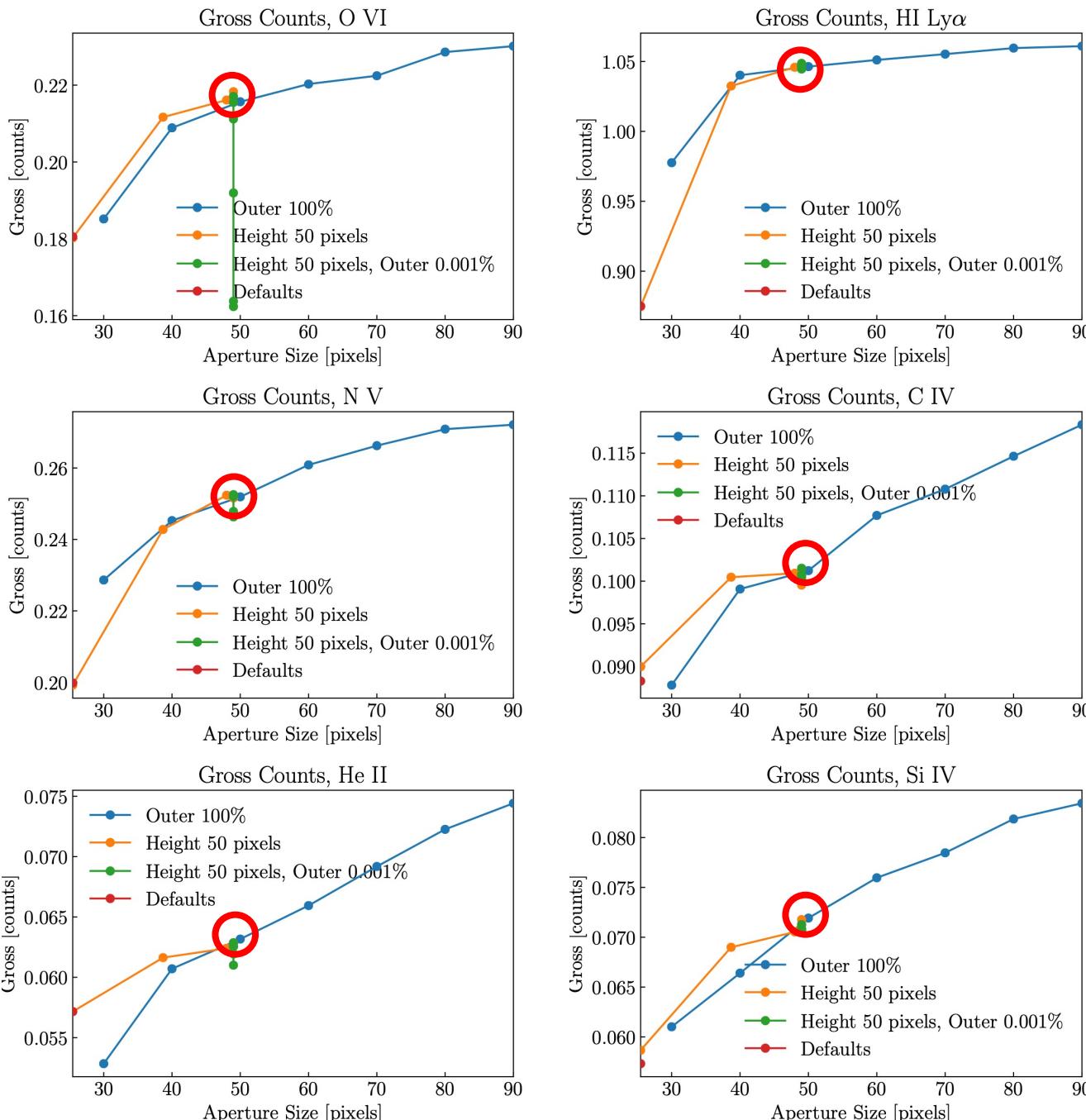
- Bubble, line flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- **Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)**



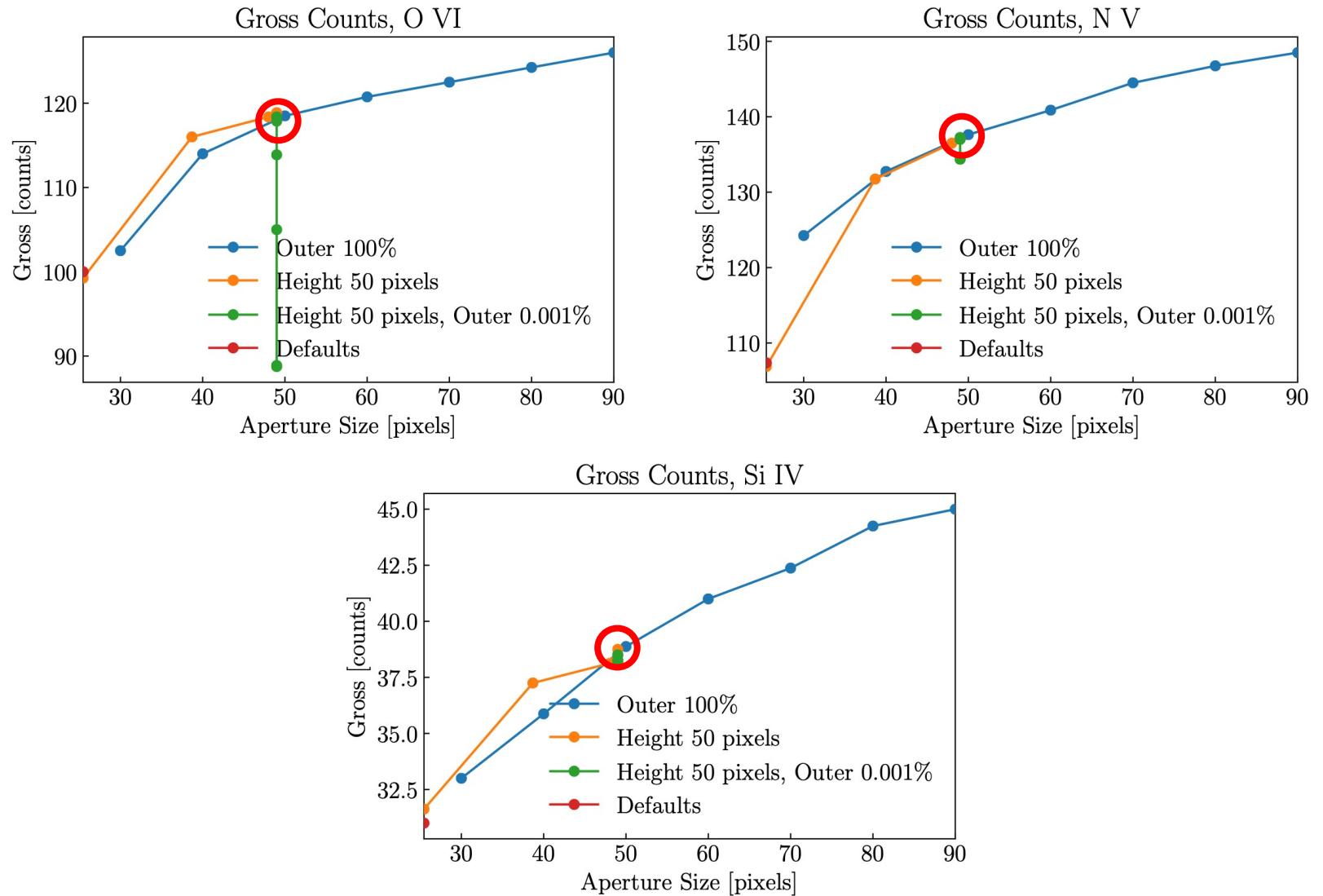
- Bubble, continuum flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)



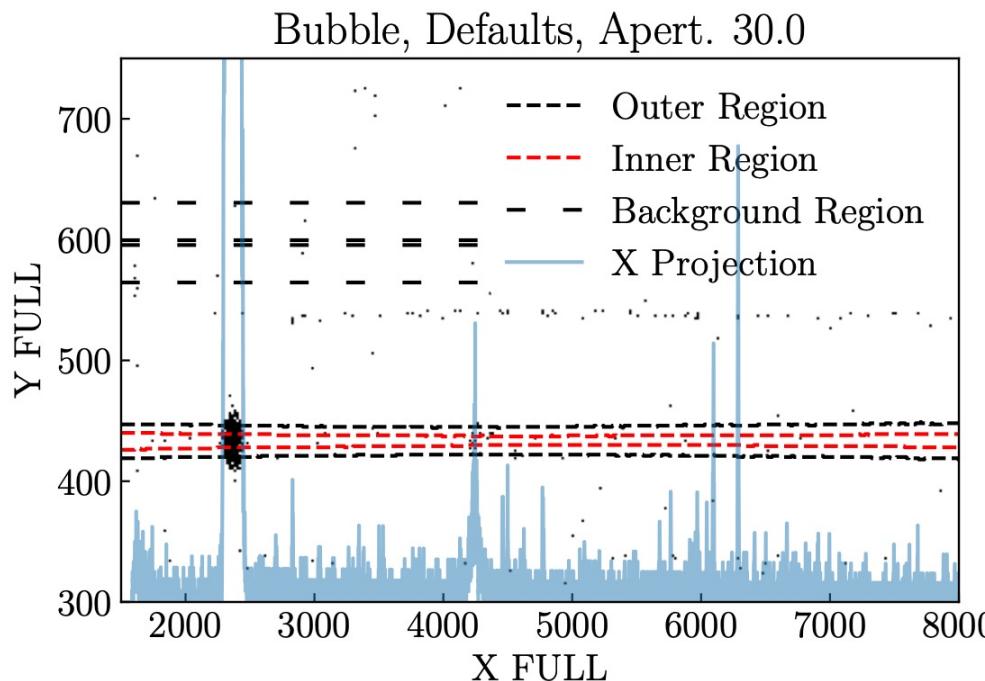
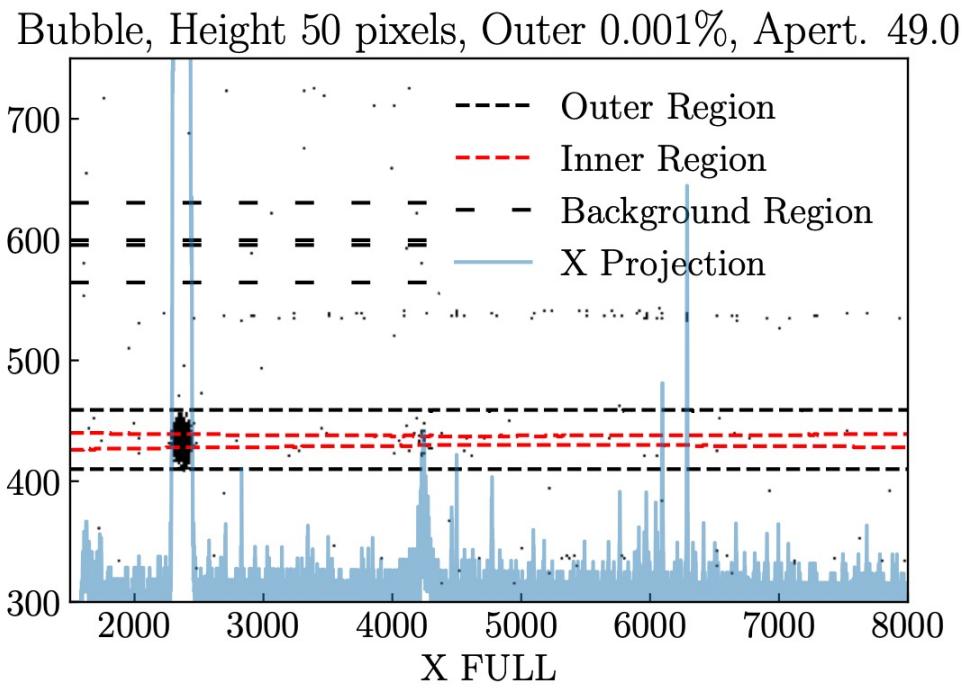
- Bubble, line counts (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- **Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)**



- Bubble, continuum flux (No continuum subtraction)
- Blue – set outer region = 100% of reference profile size, inner = 80% (default), vary height of reference profile
- Orange – set reference profile height = 50 pixels, inner = 80% (default), vary outer region percent
- Green – set reference profile height = 50 pixels, outer = $1 - 10^{-5}$, vary inner region percent
- Red – Default values for all parameters
- Result: Height = 50 pix, Outer = $1 - 10^{-5}$, inner = 1-0.2 (inner not very significant)

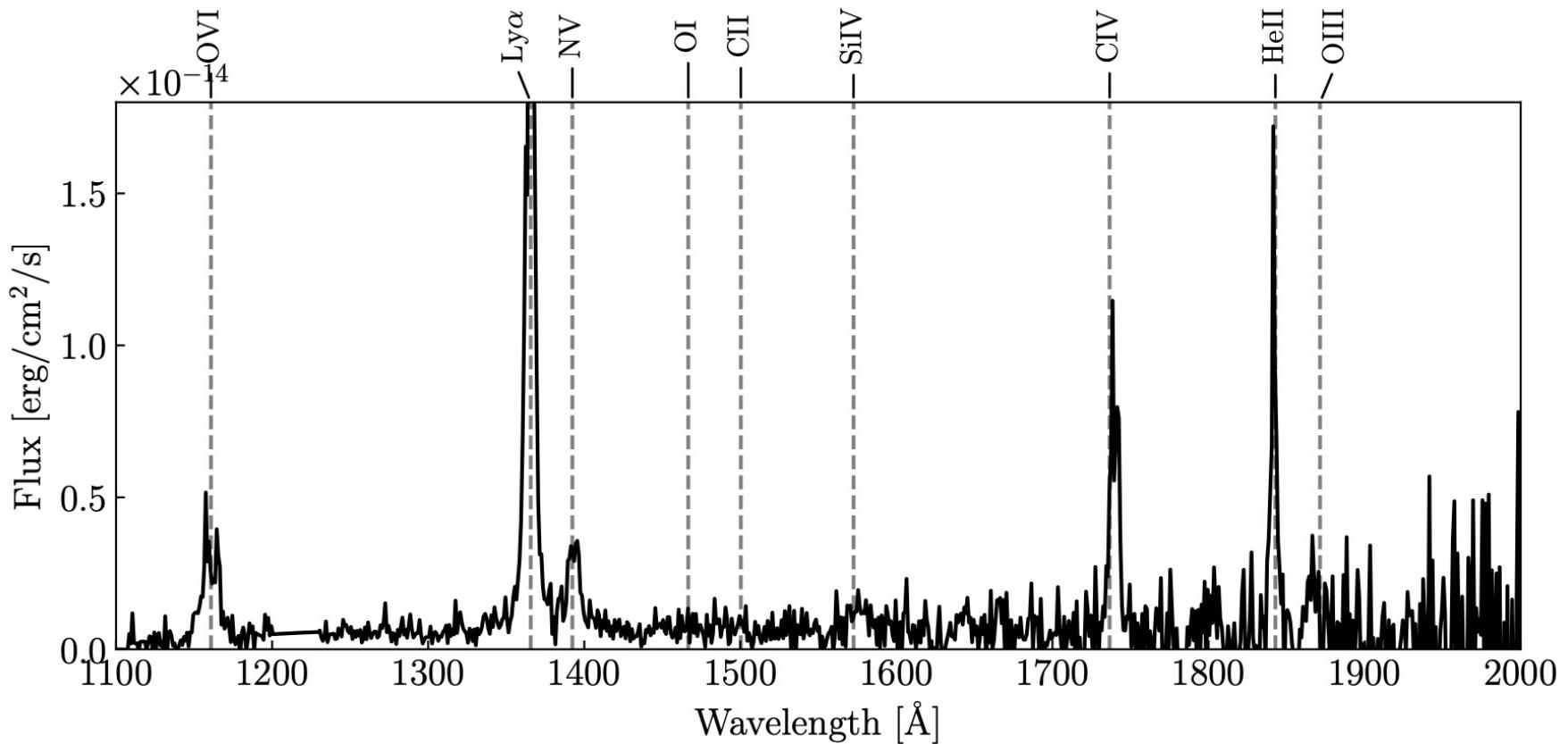


- 2D Plots – Upper = new optimum aperture, lower = defaults
- Black points – data
- Loosely dashed lines – background regions
- Dashed lines – source extraction regions (red = inner, black = outer)
- Blue spectrum – x projection of black points



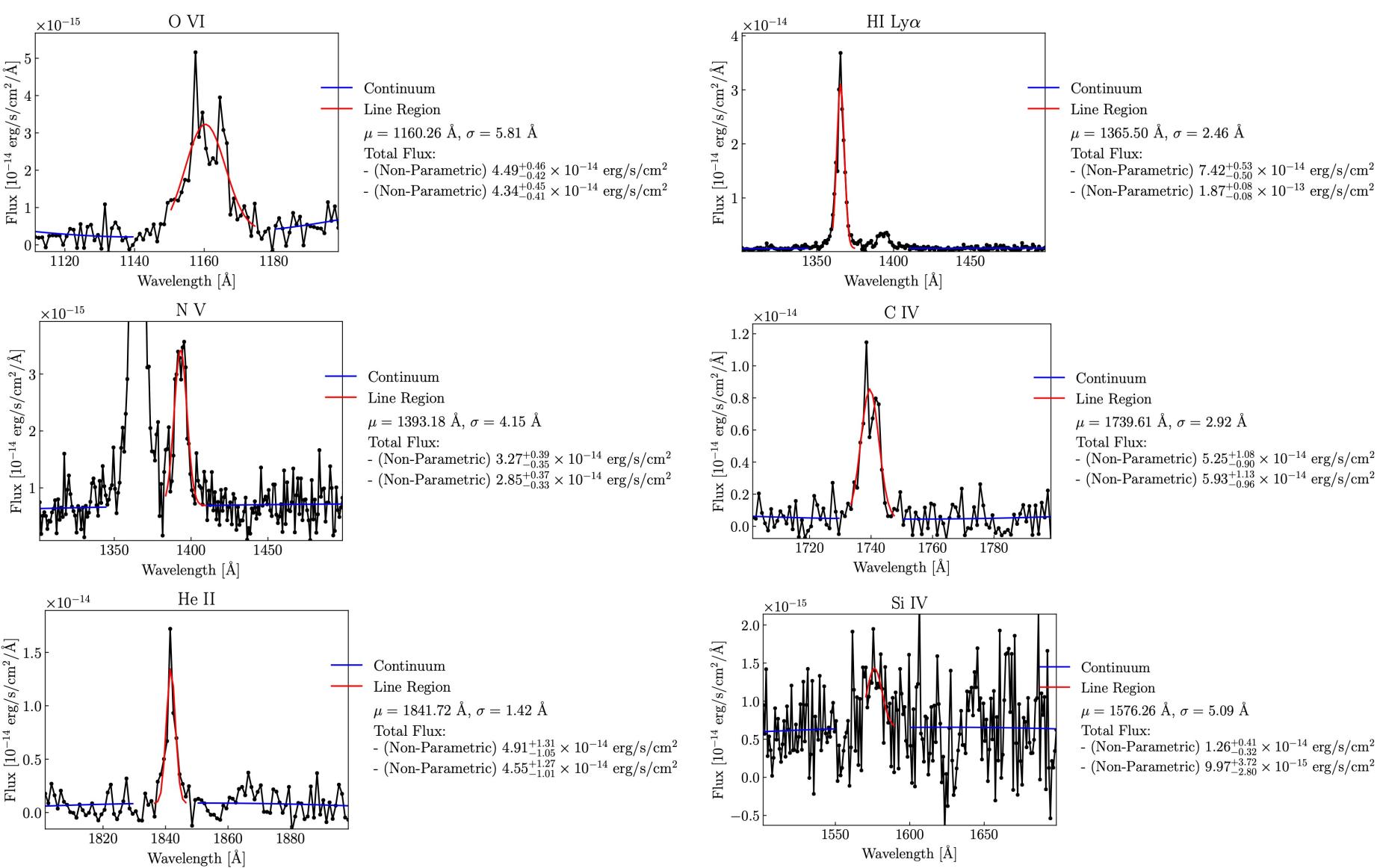
Final Plots

- Bubble spectrum
- TWOZONE settings from aperture optimization



Final Plots

- Bubble Line Fluxes w fits
- TWOZONE settings from aperture optimization



Final Plots

- Bubble Line Counts w fits
- TWOZONE settings from aperture optimization

