

8/8 (Tue) v2

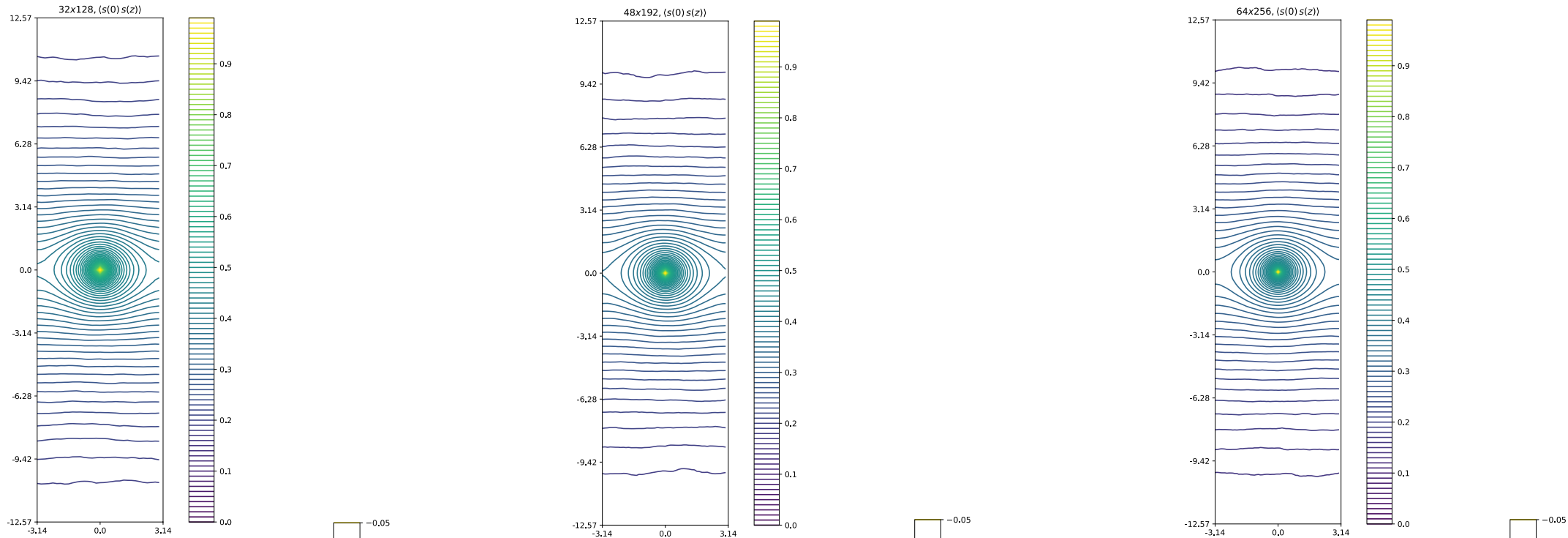
What is addressed below:

- Critical 2D Ising model, uniform coupling on square lattice ($K_1 = K_2; K_3 = 0$)
- Volume = 32x128, 48x192, 64x256
- Check UV & IR behaviors of spin-spin and energy-energy correlators

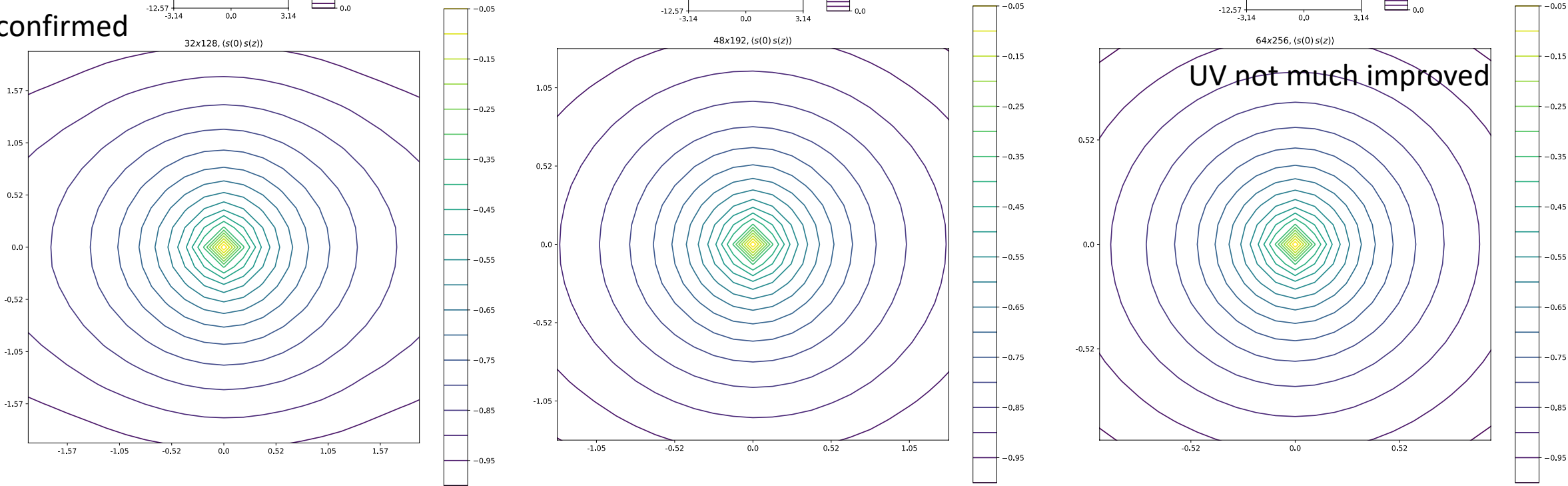
Memo:

- $n_{\text{skip}}=50$, $n_{\text{therm}}=n_{\text{skip}}*100$, $n_{\text{therm}}=n_{\text{traj}}*1600$. Wolff only
- Radial quantization picture, x rescaled to $[-\pi, \pi]$

Spin-spin
overview



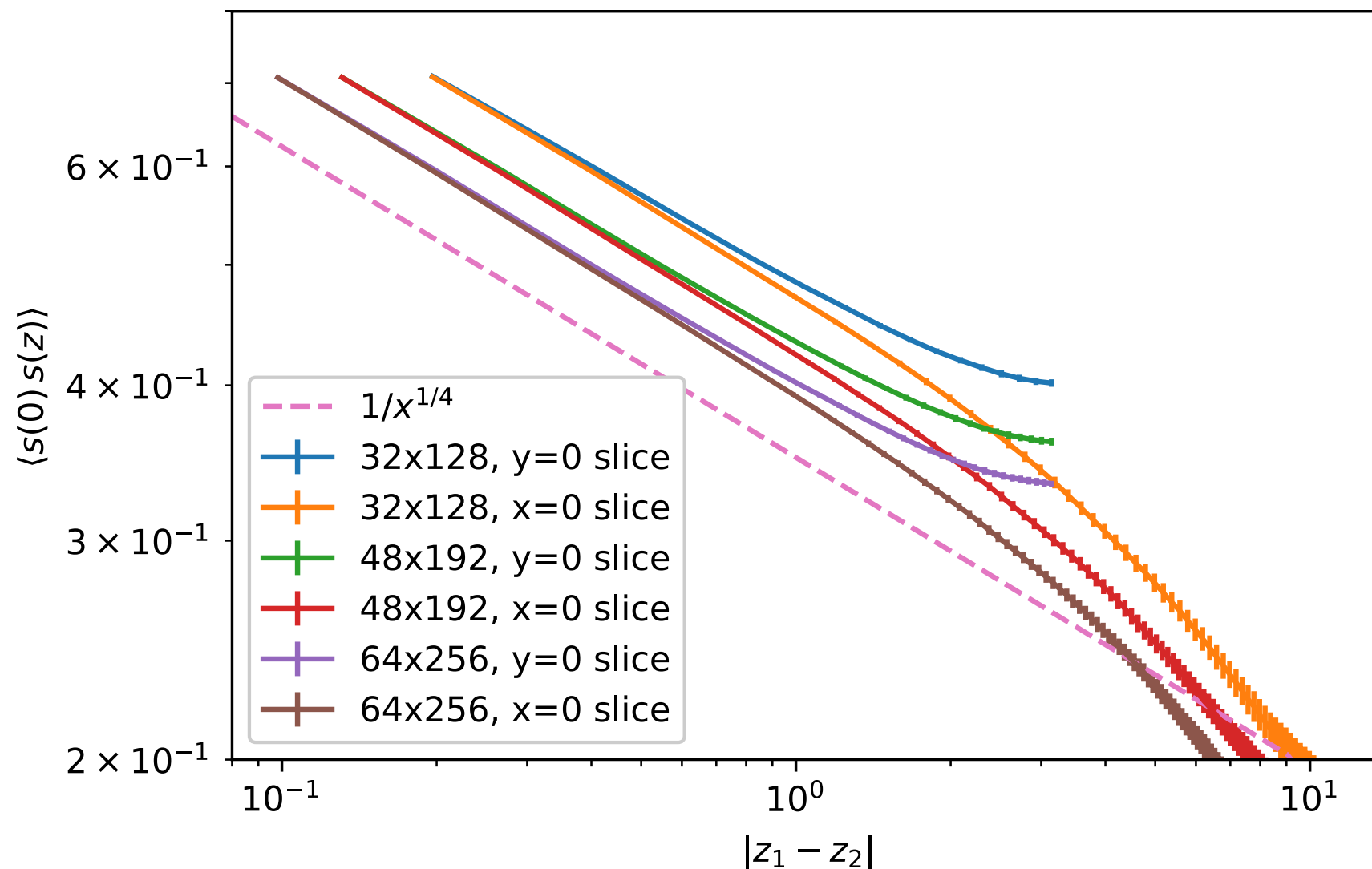
Circle confirmed



Spin-spin

$x=0$ and $y=0$ slices

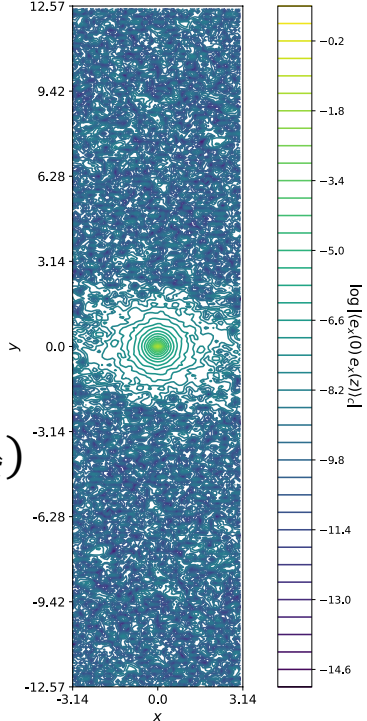
- Exponents seem to agree among three
- Reason for the overall factor needs to be understood; IR as well
→ compare to exact results of Francesco



Energy-energy
(64x256)

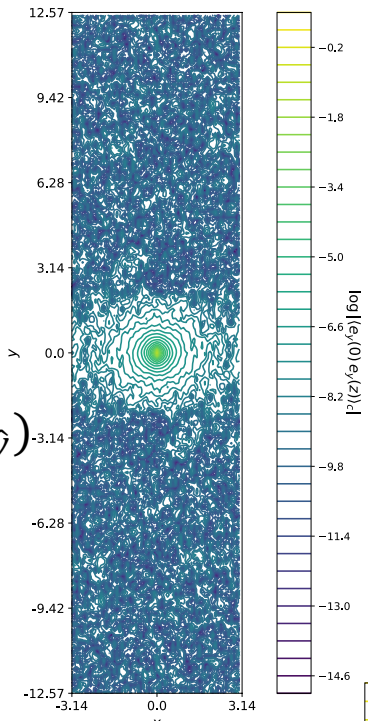
ex-ex

$$e_x \equiv \frac{1}{2} s_z (s_{z+\hat{x}} + s_{z-\hat{x}})$$

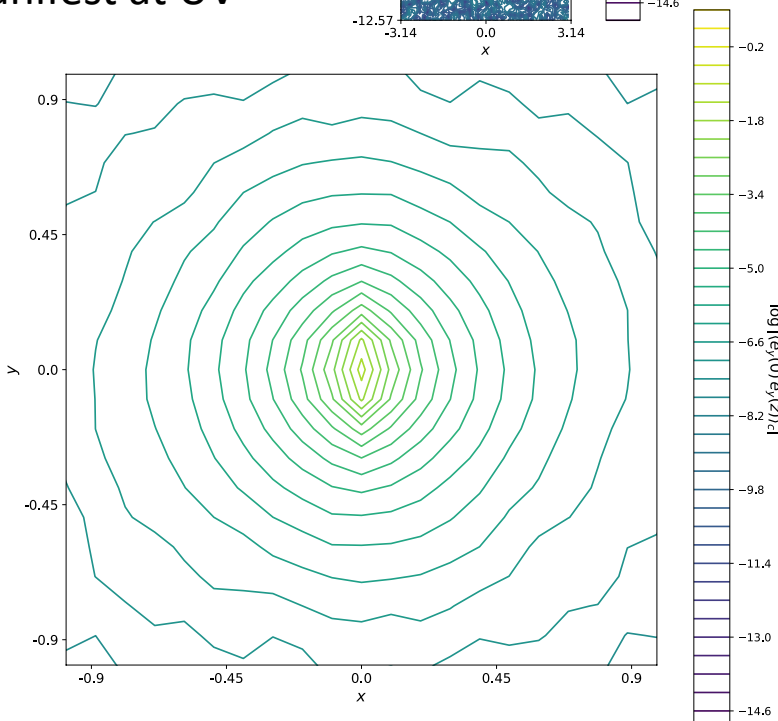
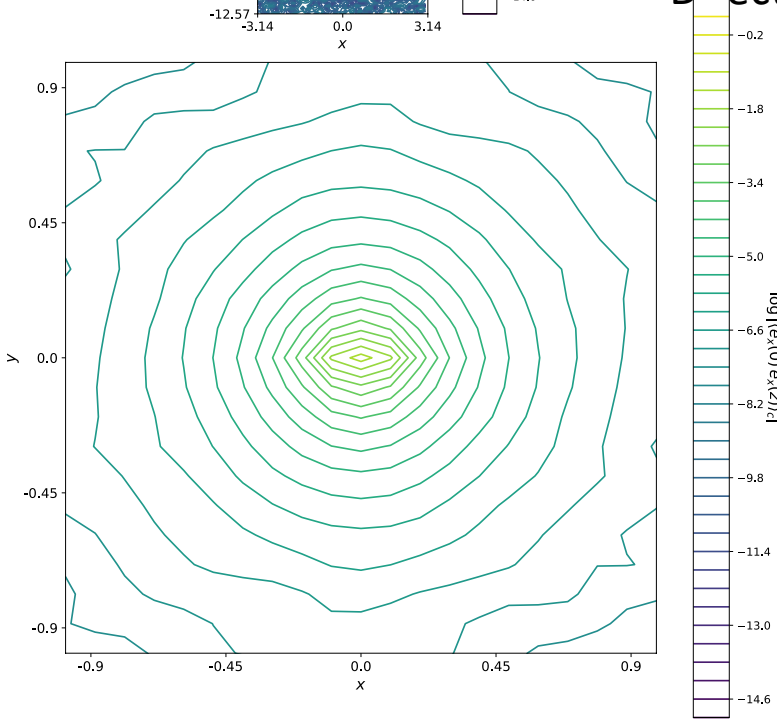


ey-ey

$$e_y \equiv \frac{1}{2} s_z (s_{z+\hat{y}} + s_{z-\hat{y}})$$

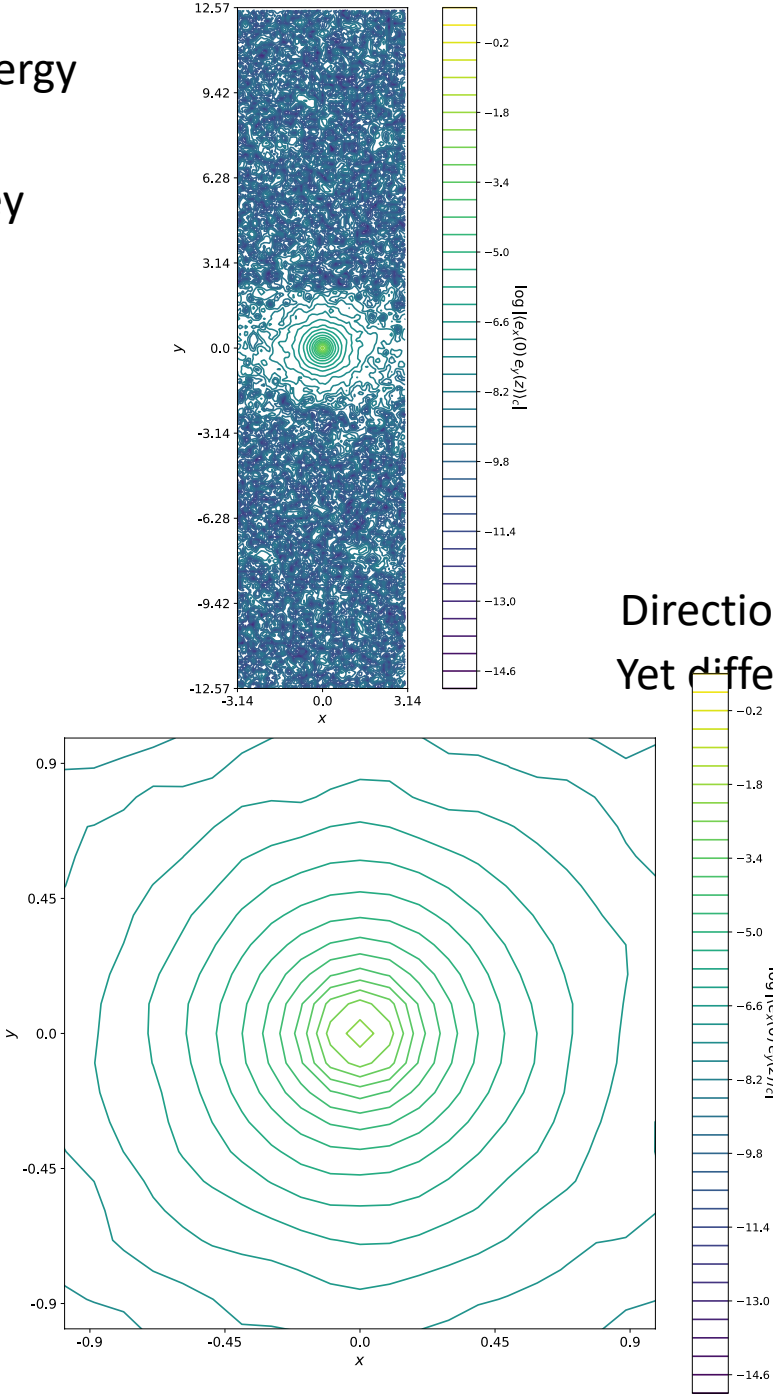


Directional dependence manifest at UV



Energy-energy
(64x256)

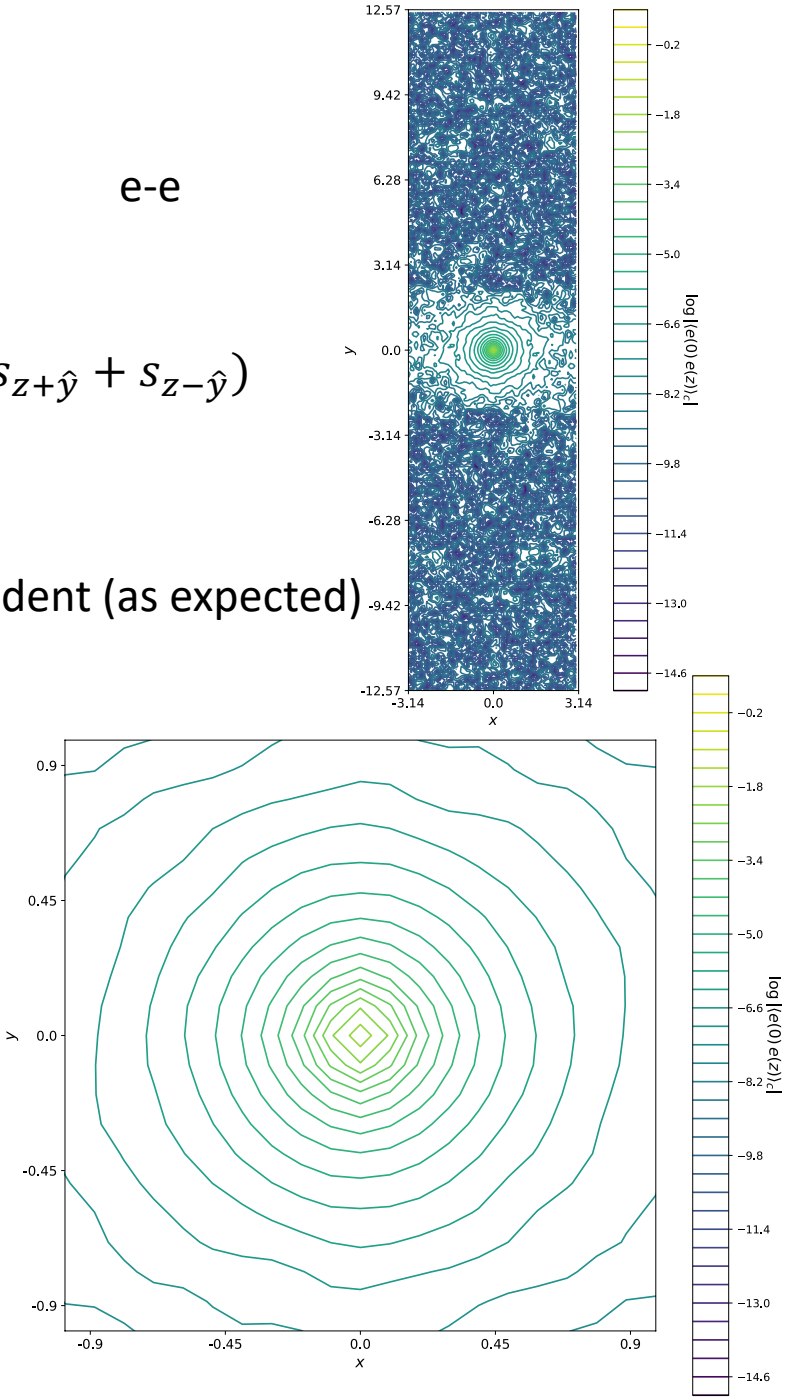
ex-ey



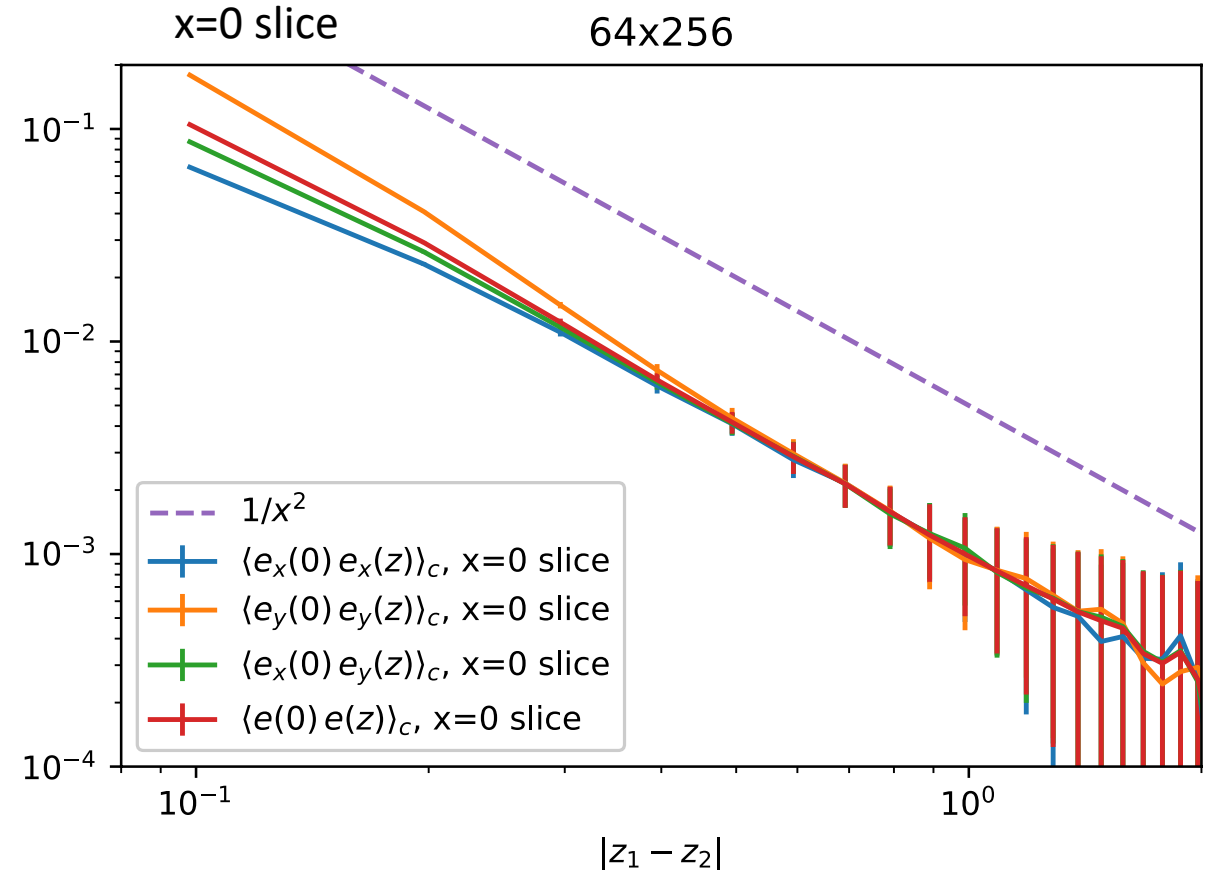
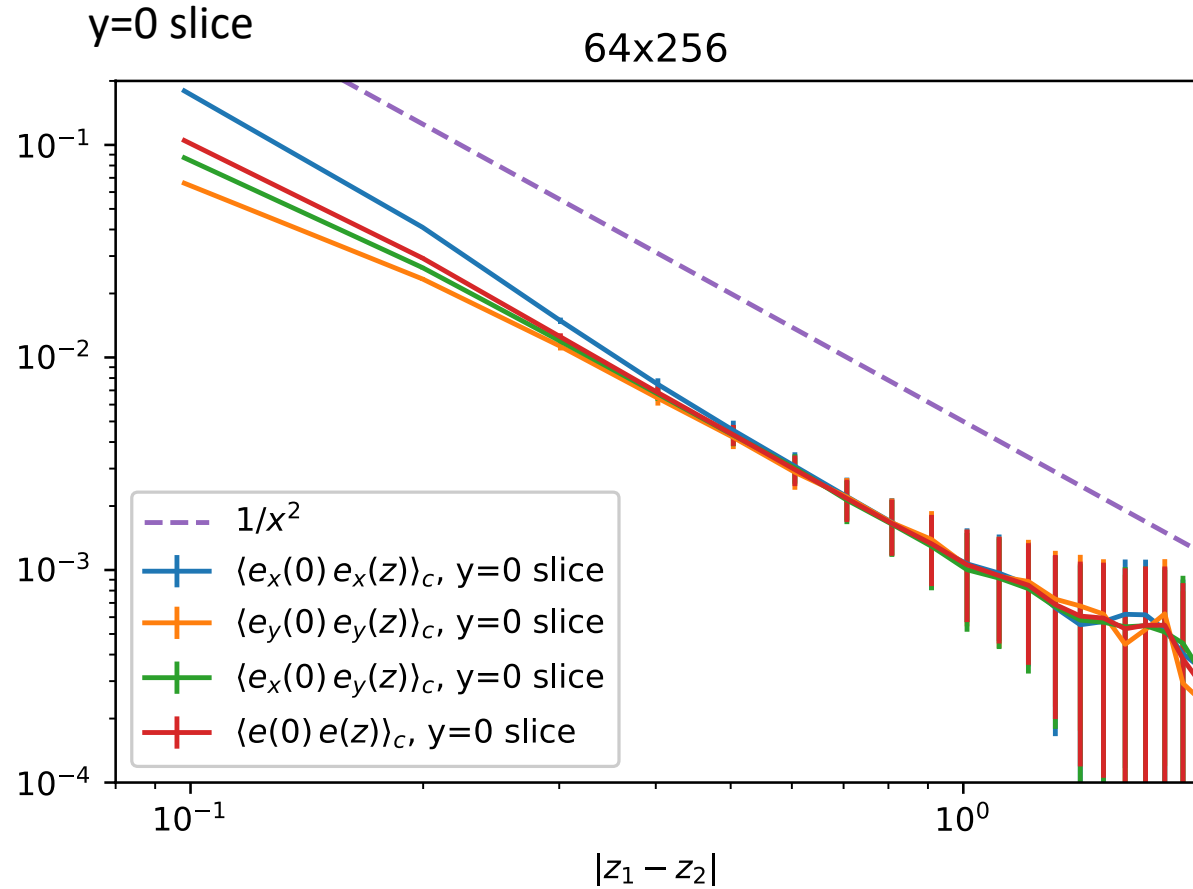
$$e \equiv \frac{1}{4} s_z (s_{z+\hat{x}} + s_{z-\hat{x}} + s_{z+\hat{y}} + s_{z-\hat{y}})$$

Directional dependence not much evident (as expected)
Yet differs at UV

e-e



Energy-energy (64x256)



- Deviation at small distance (as expected)
- Small window but have power-like regions
→ exponent needs to be compared to exact results

Energy-energy
x=0 and y=0 slices

- Reason for the overall factor needs to be understood here as well (large chance of misunderstanding)
- Difference in IR not much evident as spin-spin

