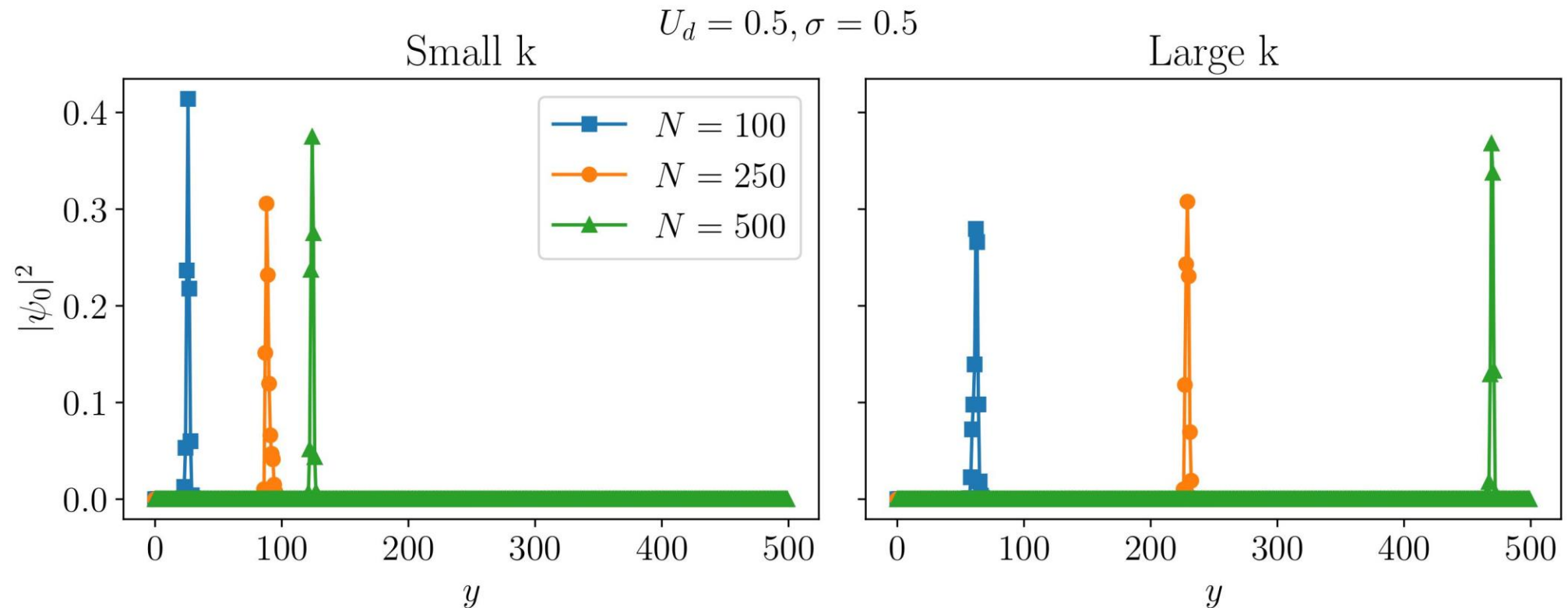# BEC tubes Localization and Shear Viscosity

Camilla Polvara
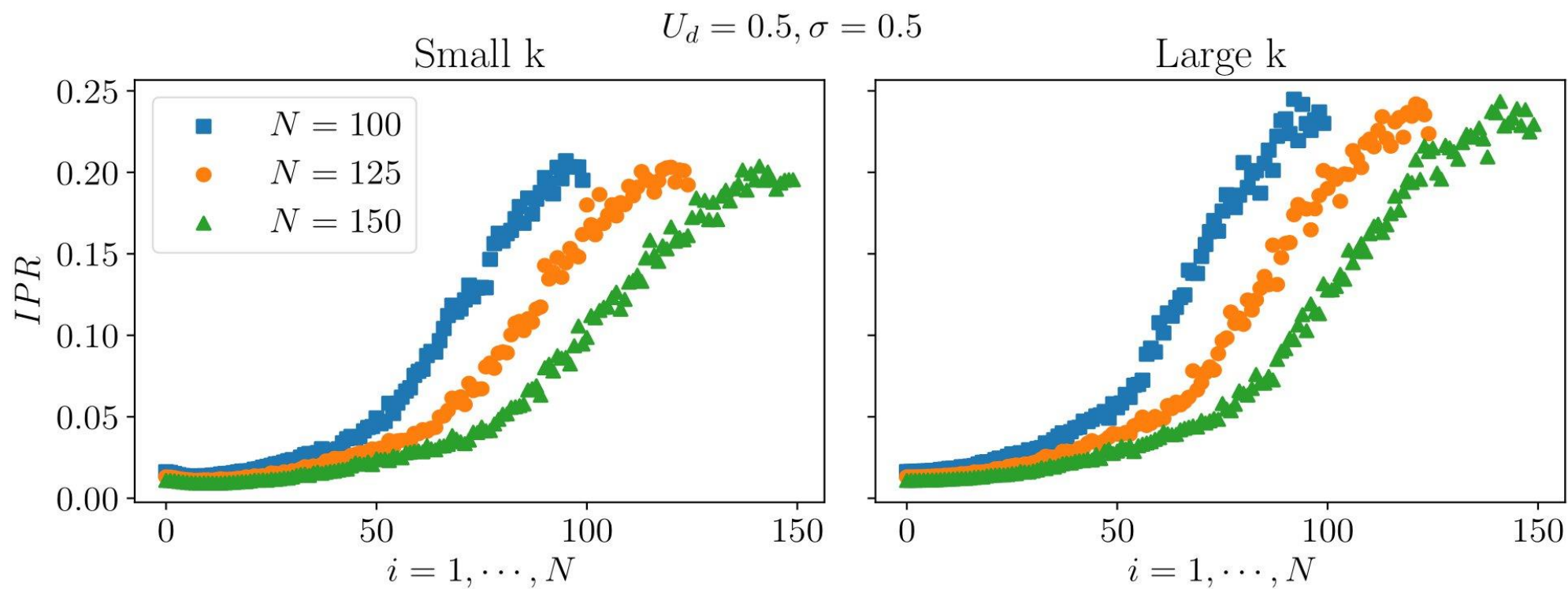
Nearest Neighbor Interaction

- Spatial distribution (y-axis) of the lowest mode

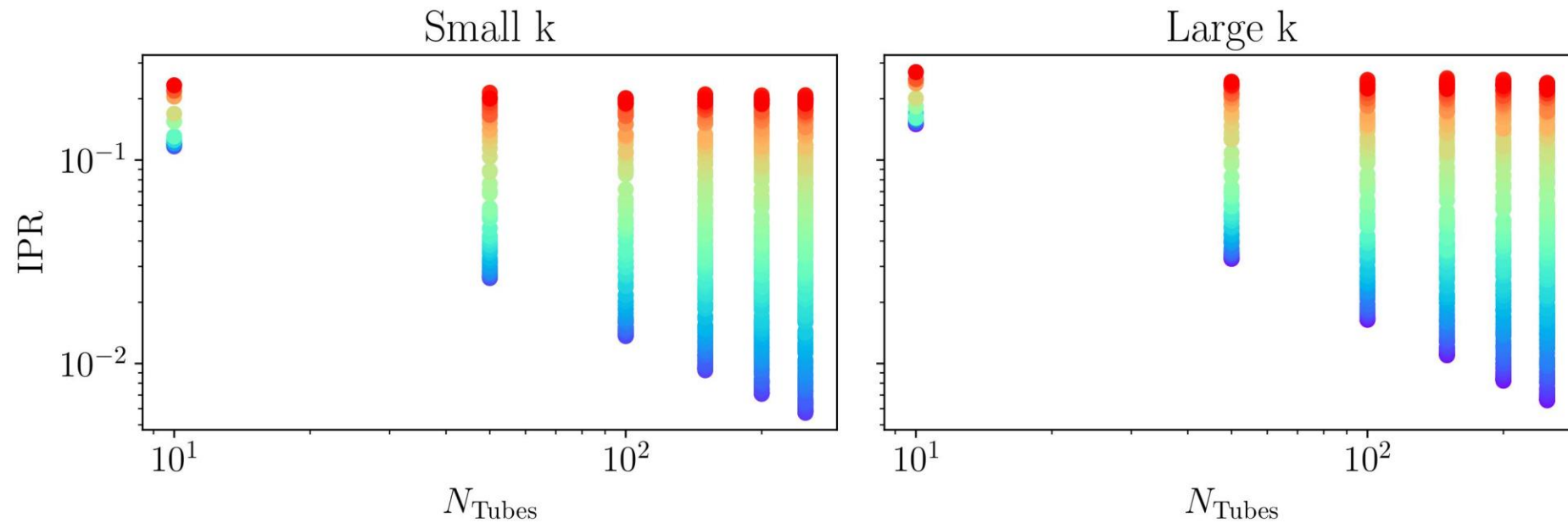# NN Interaction

- IPRs vs wavefunction index

$U_d = 0.5, \sigma = 0.5$
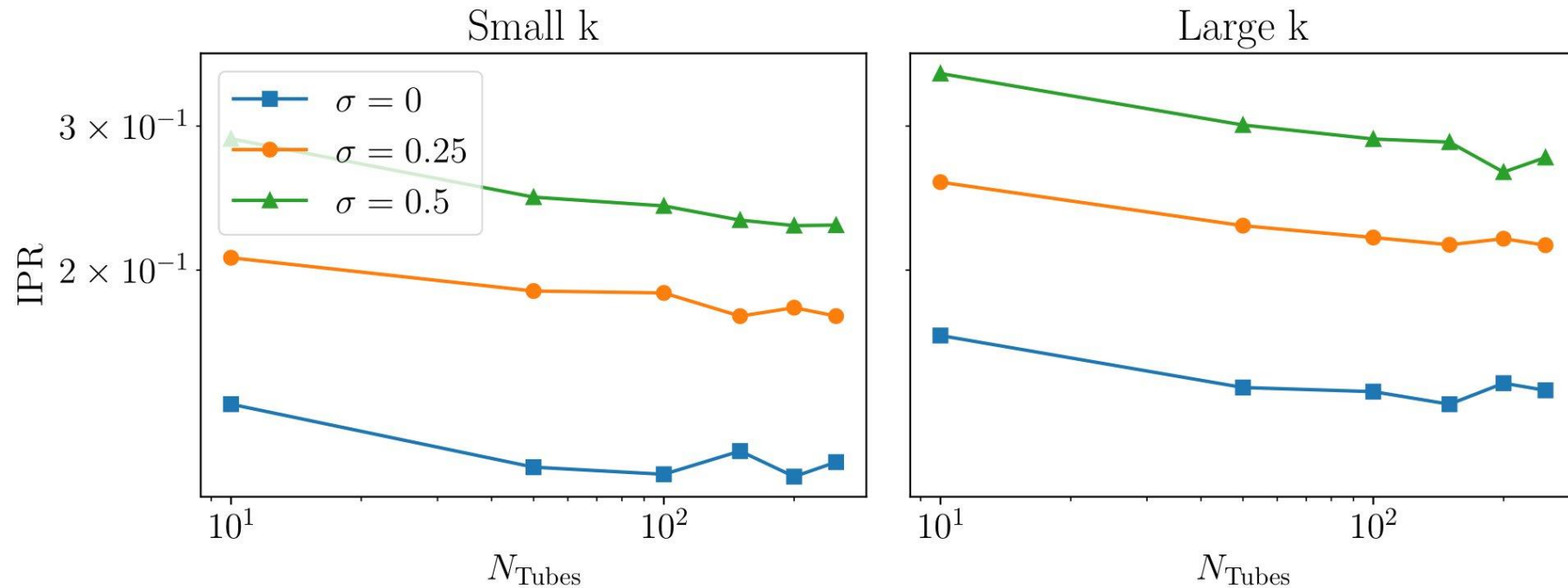
NN Interaction

- IPRs vs system size (tubes number)
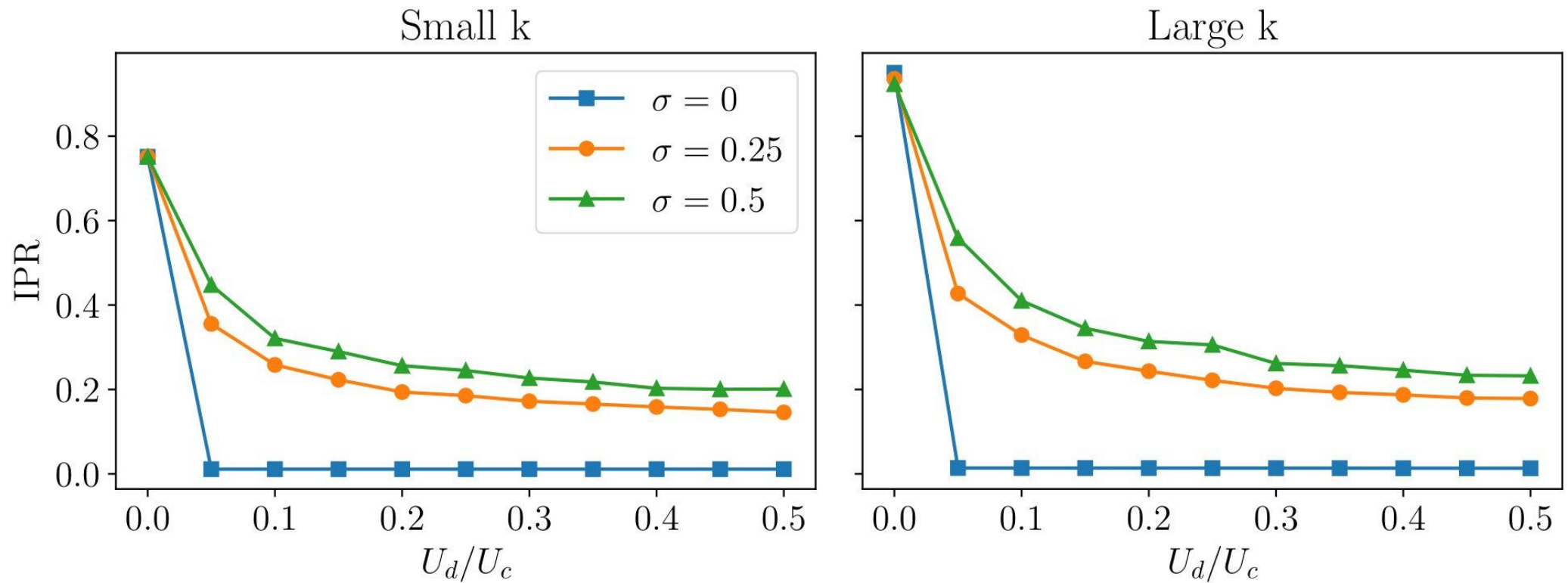
$$U_d = 0.5, \sigma = 0.5$$

NN Interaction

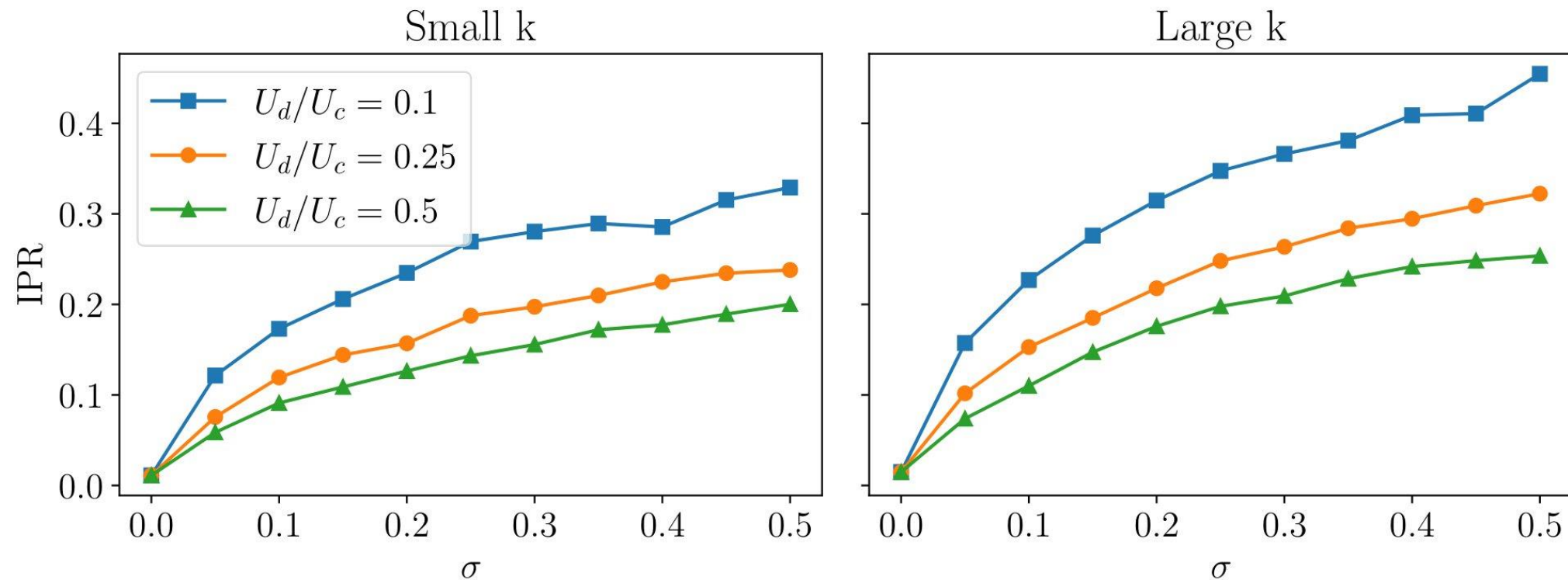- Lowest IPR vs system size (tubes number)

NN Interaction

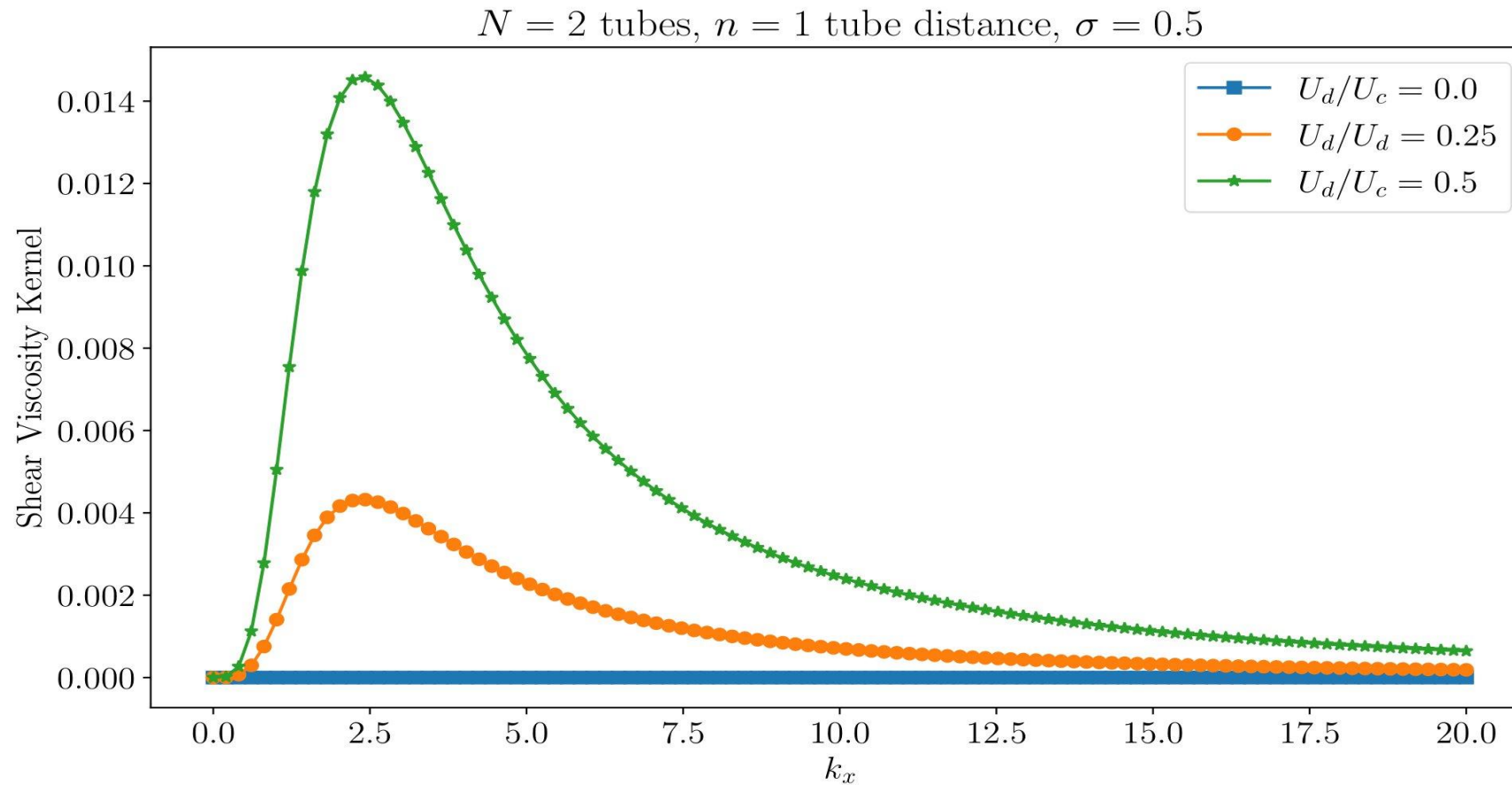- Lowest IPR vs dipolar interaction strength

NN Interaction

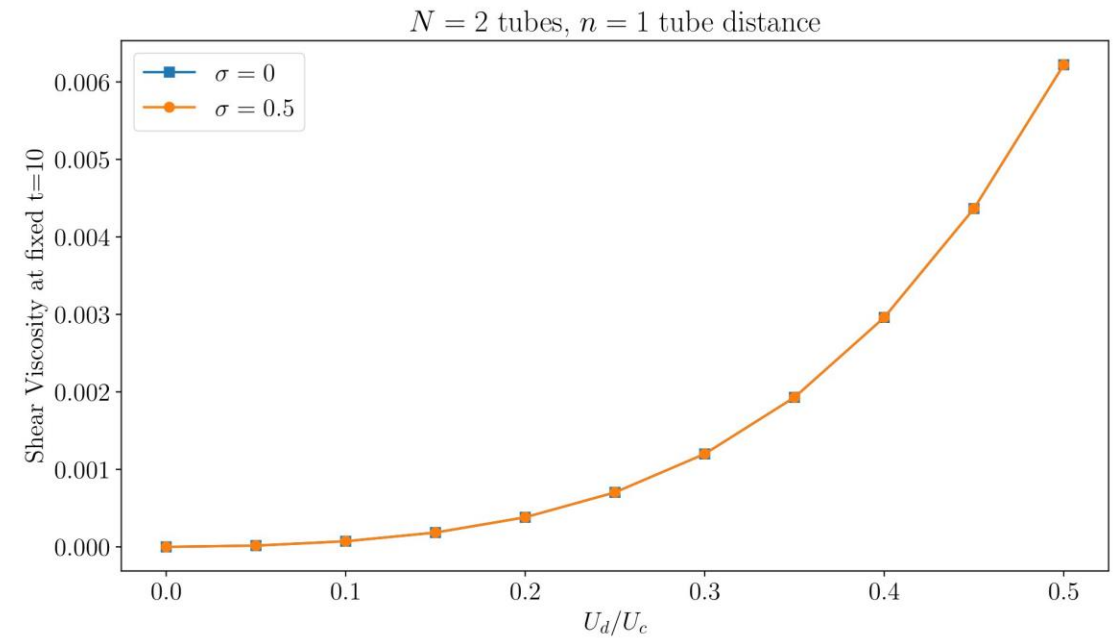- Lowest IPR vs disorder parameter magnitude

NN Interaction

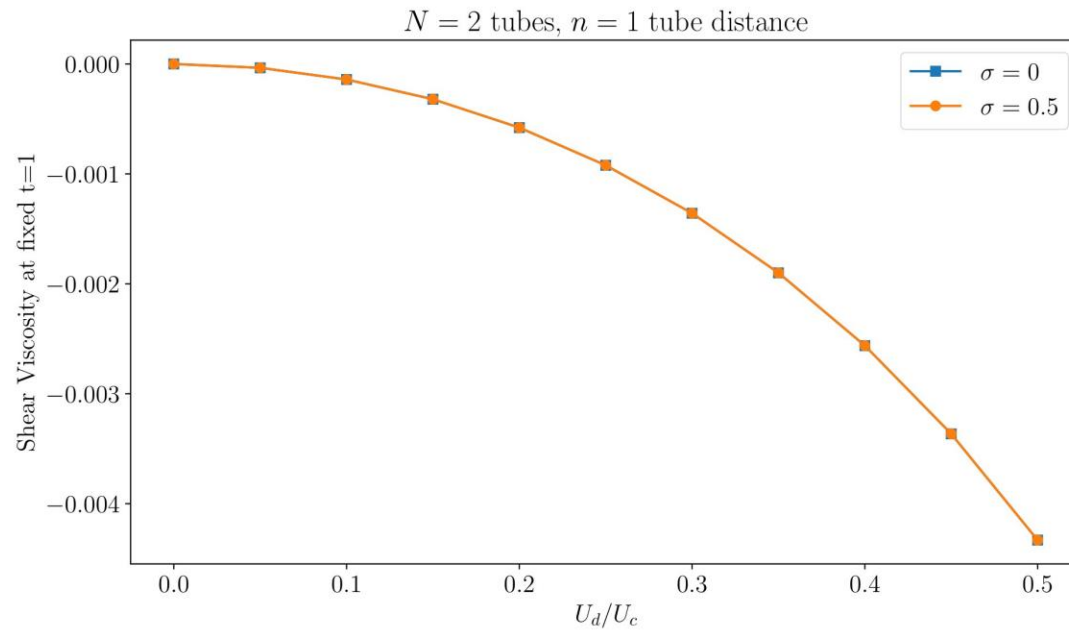- Shear viscosity kernel vs momentum

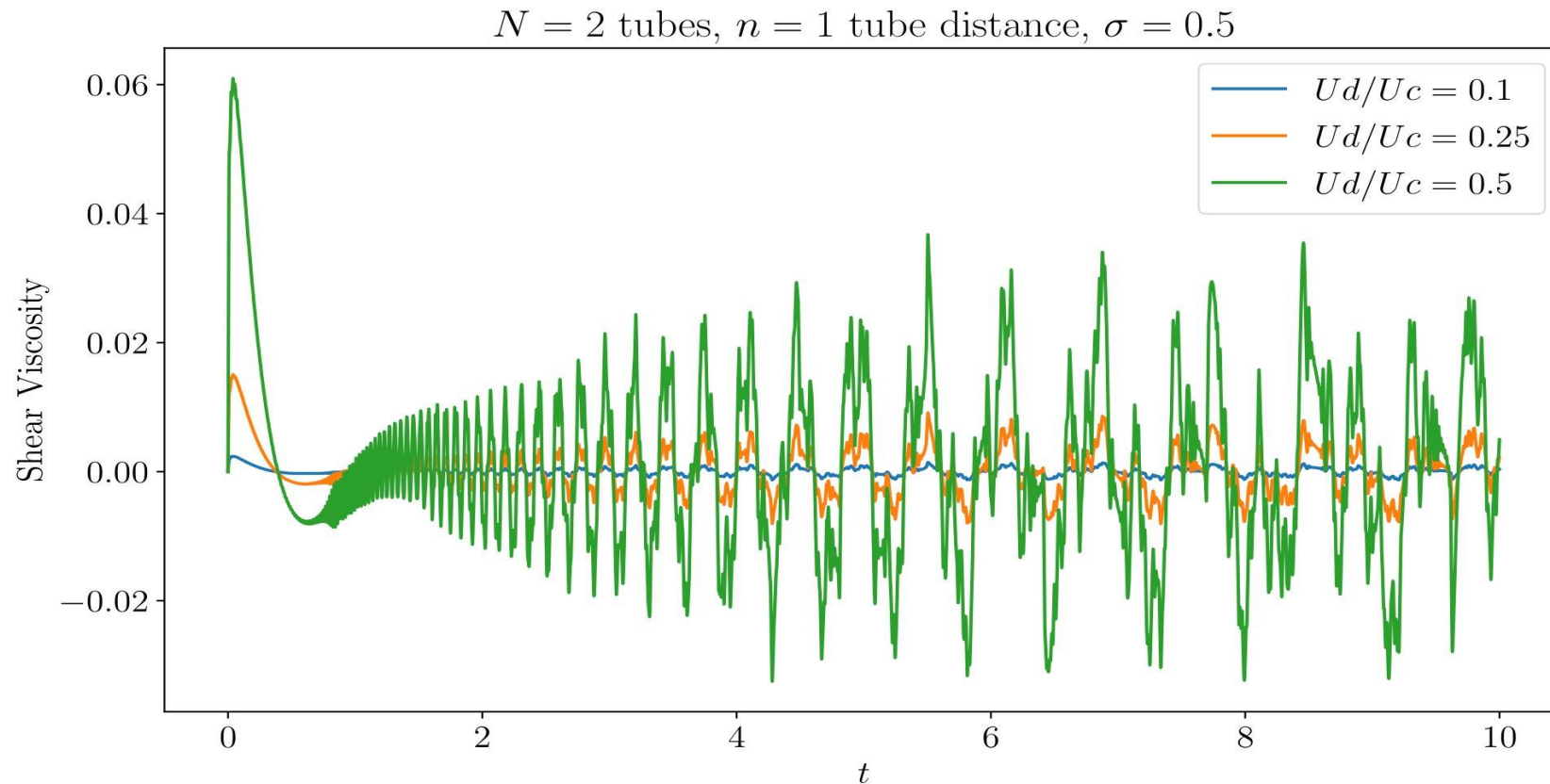$N = 2$ tubes, $n = 1$ tube distance, $\sigma = 0.5$

NN Interaction

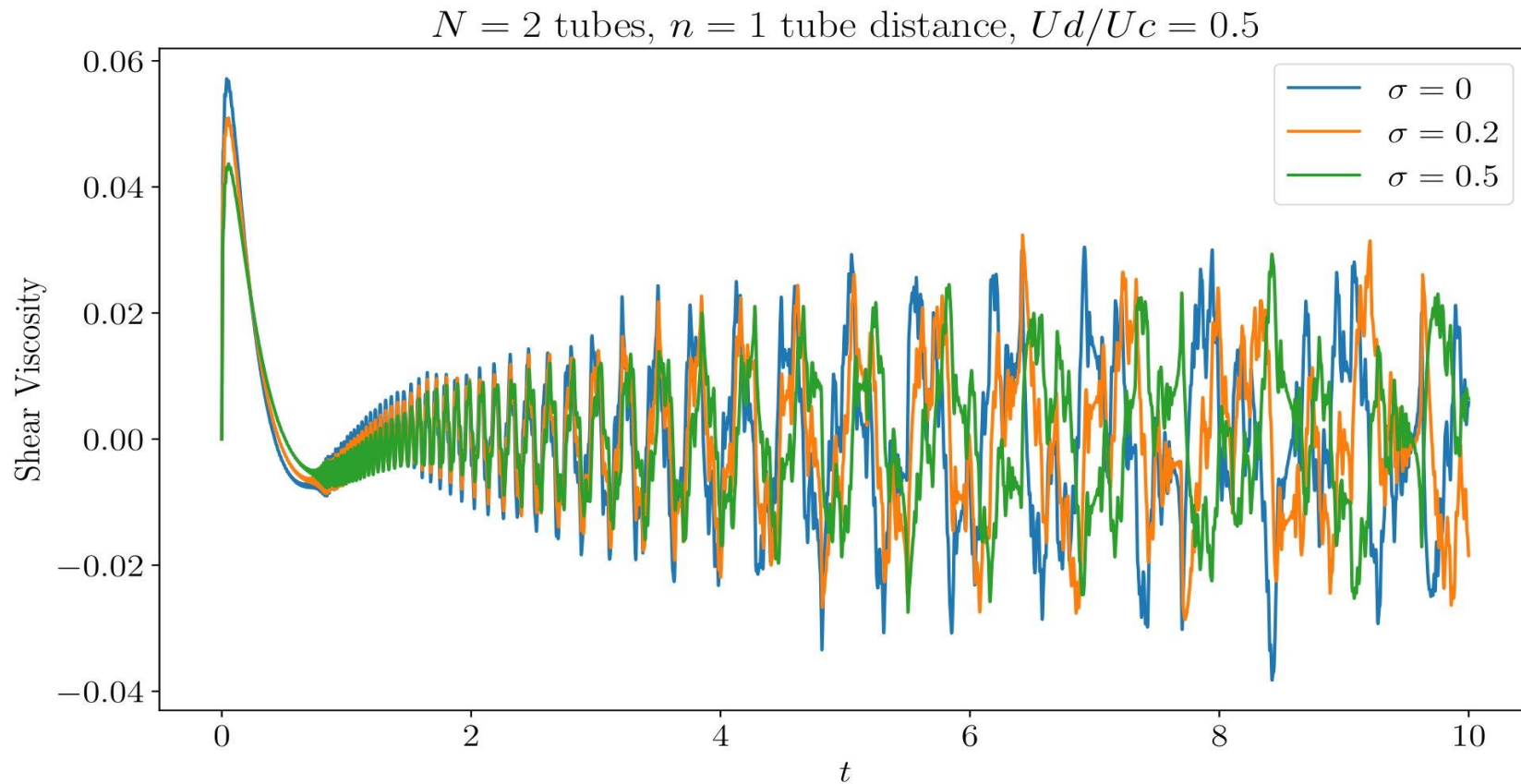- Shear viscosity vs dipolar interaction strength

NN Interaction

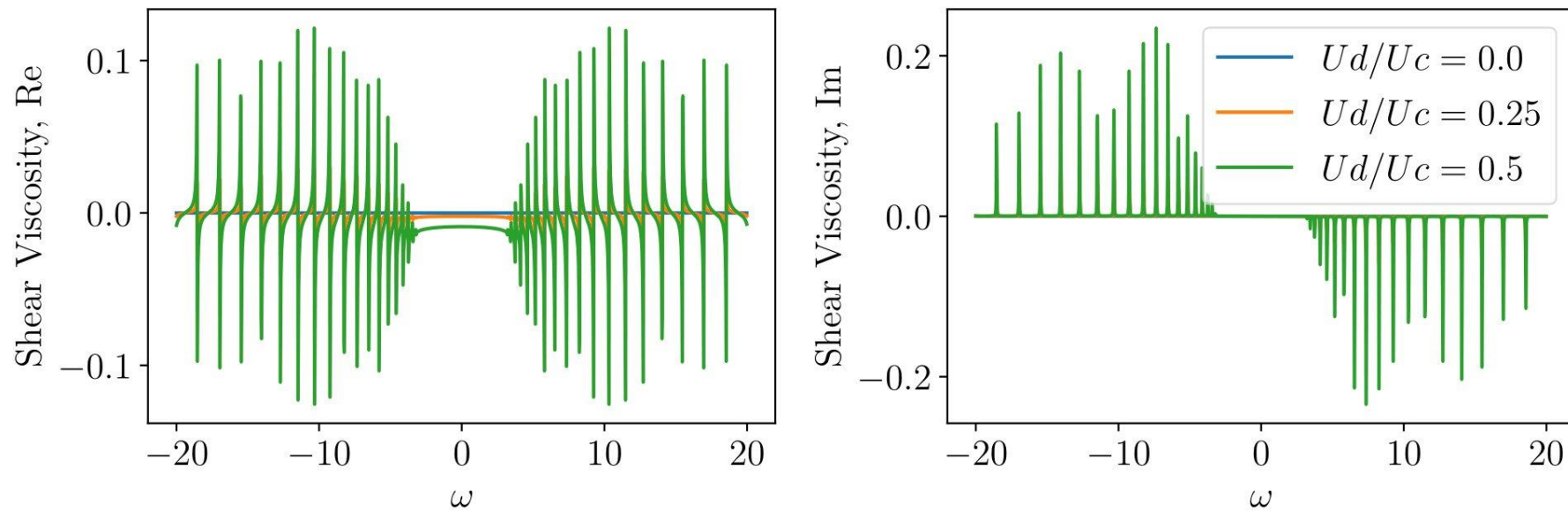- Shear viscosity vs t, for three values of Ud

NN Interaction

- Shear viscosity vs t, for three values of sigma
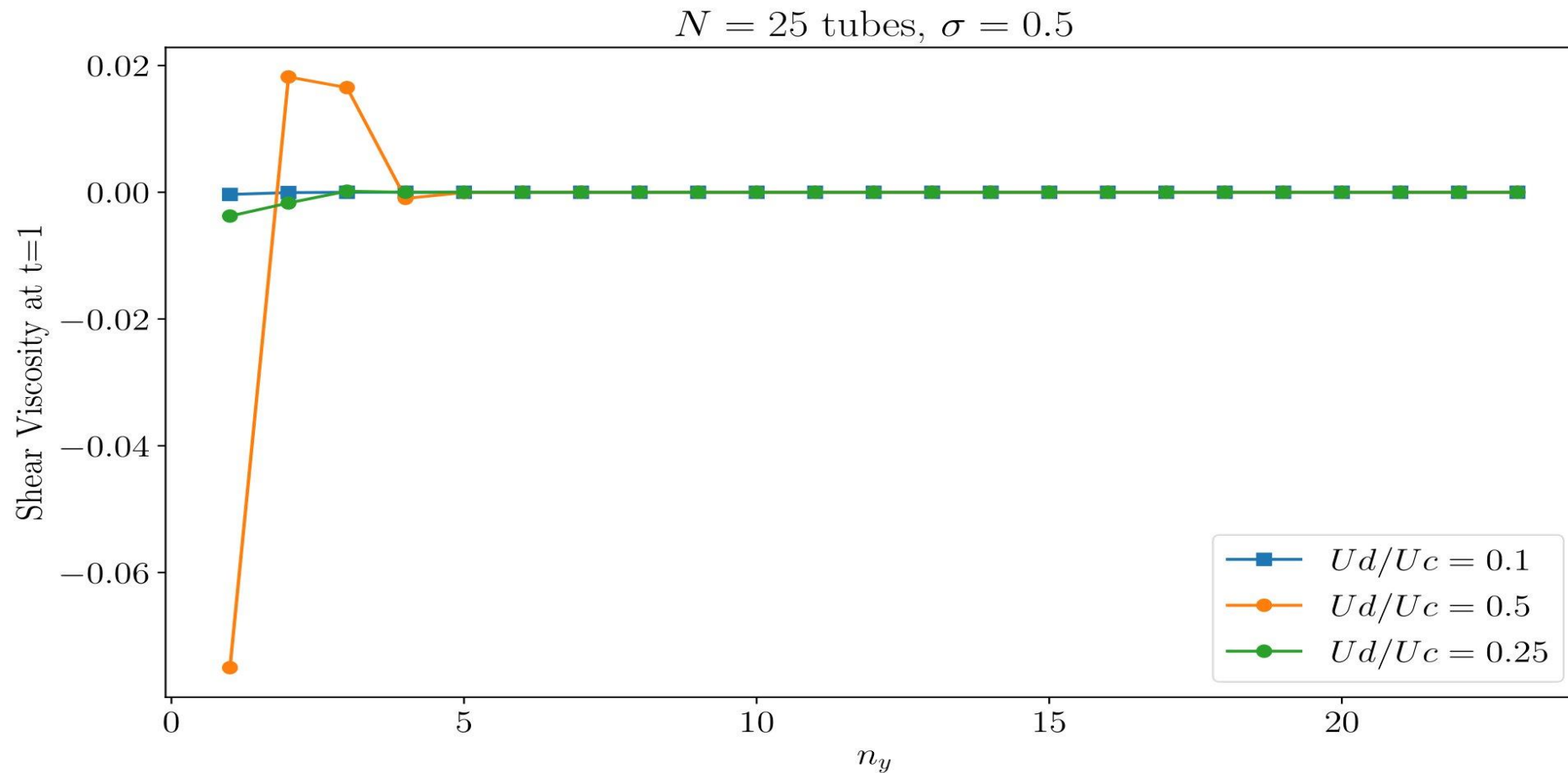
NN Interaction

- Time-Fourier transform of the viscosity vs omega

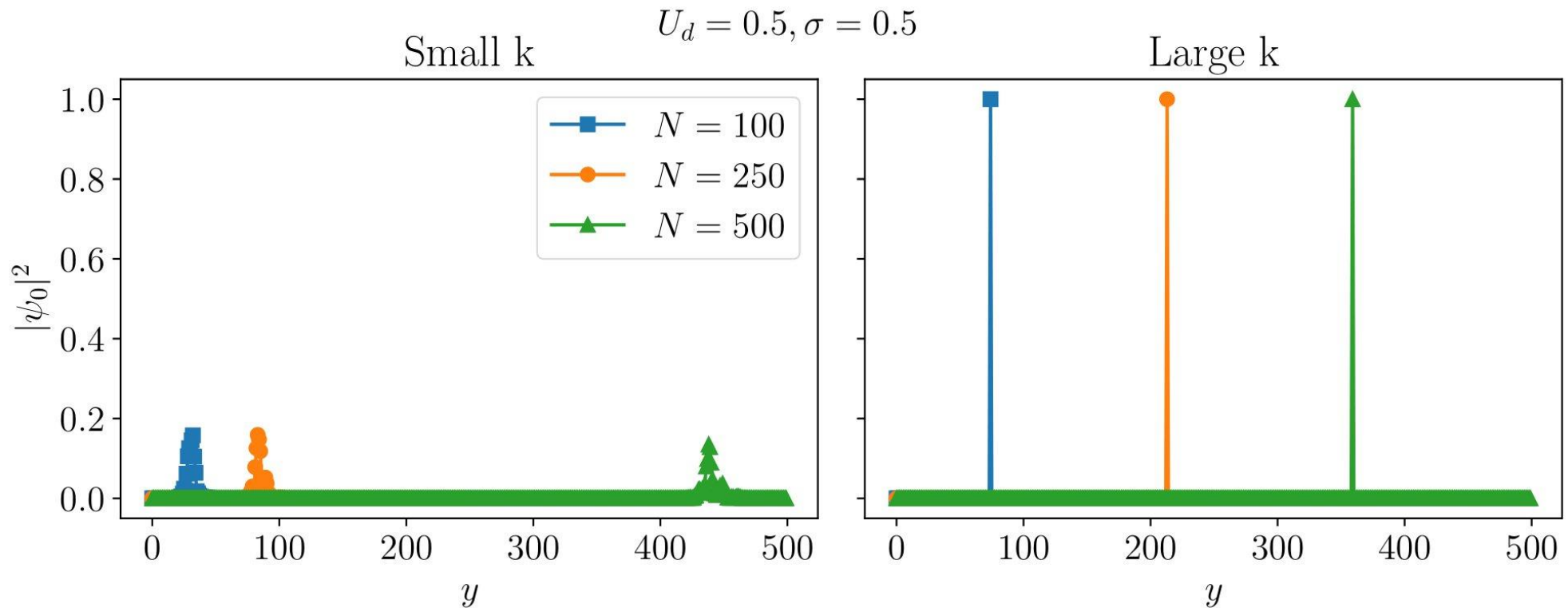$N = 2$ tubes, $n = 1$ tube distance, $\sigma = 0.5$

NN Interaction
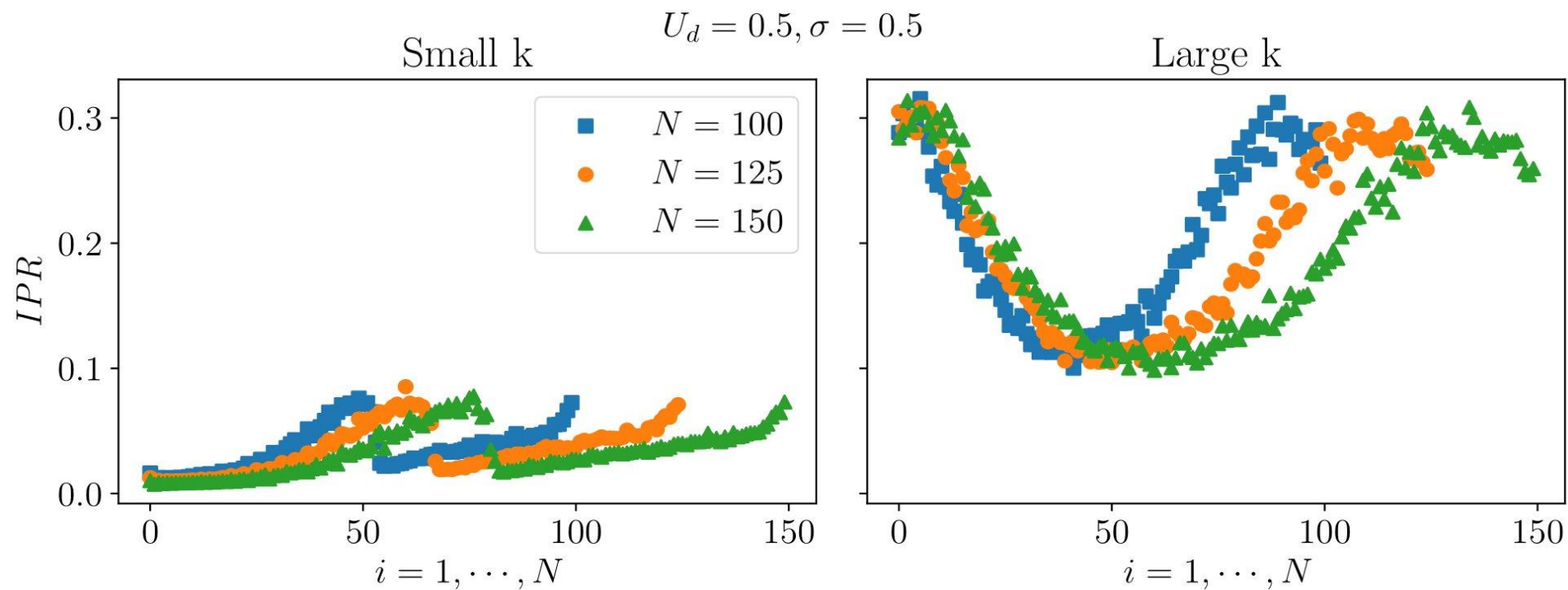
- Shear viscosity vs tube distance

Dipolar Interaction

- Spatial distribution (y-axis) of the lowest mode
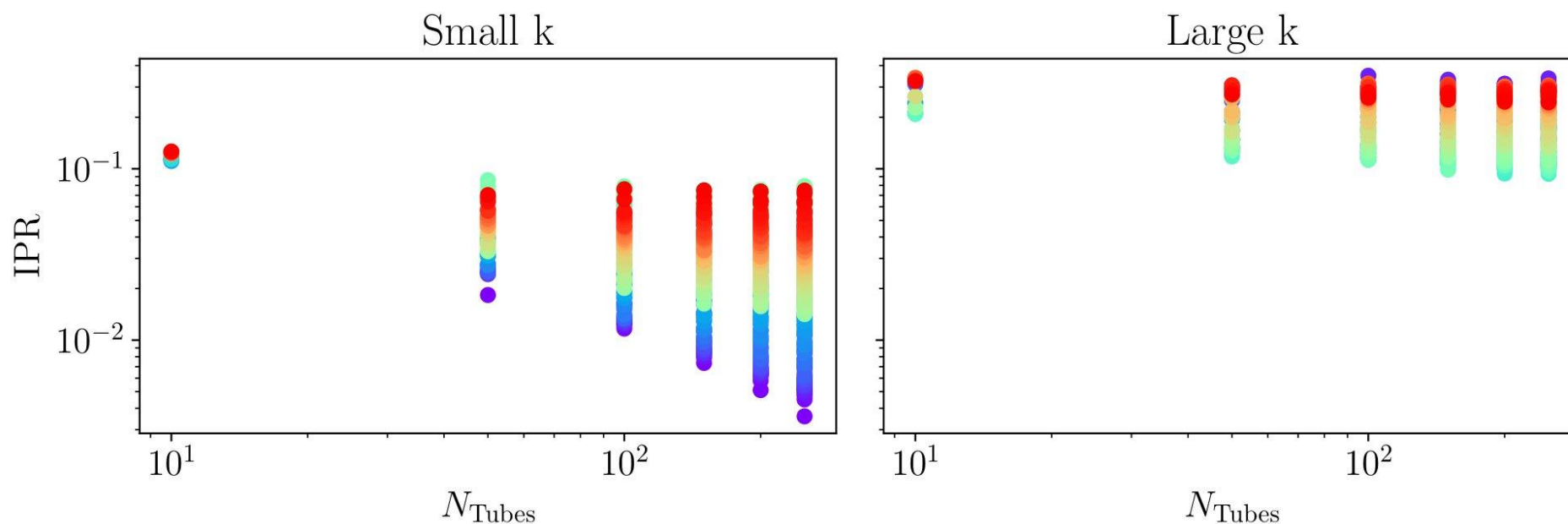
Dip Interaction

- IPRs vs wavefunction index
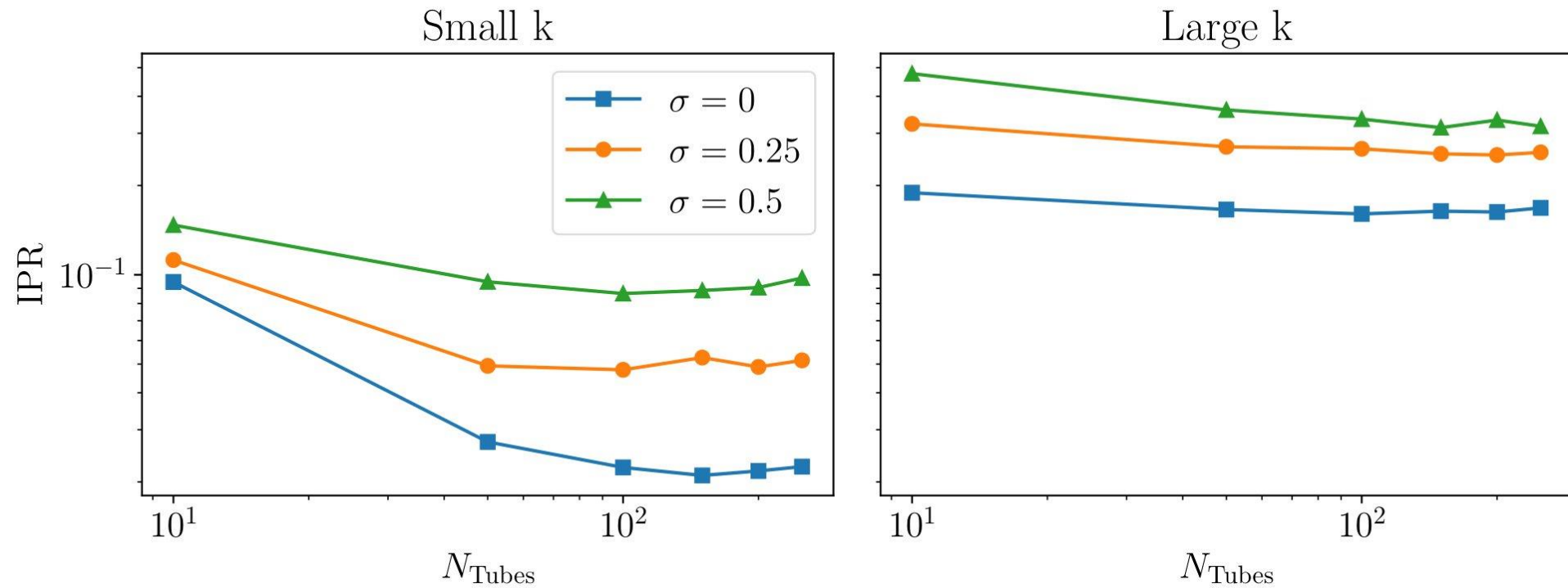
Dip Interaction

- IPRs vs system size (tubes number)
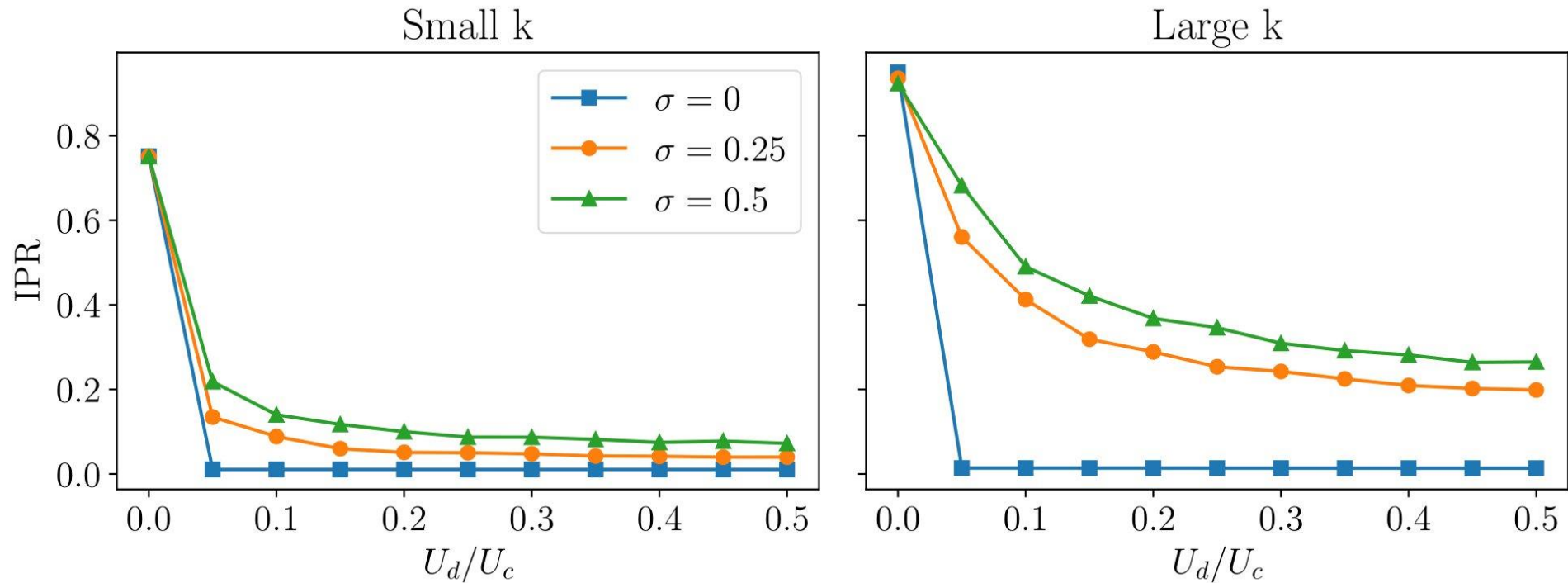
$$U_d = 0.5, \sigma = 0.5$$

Dip Interaction

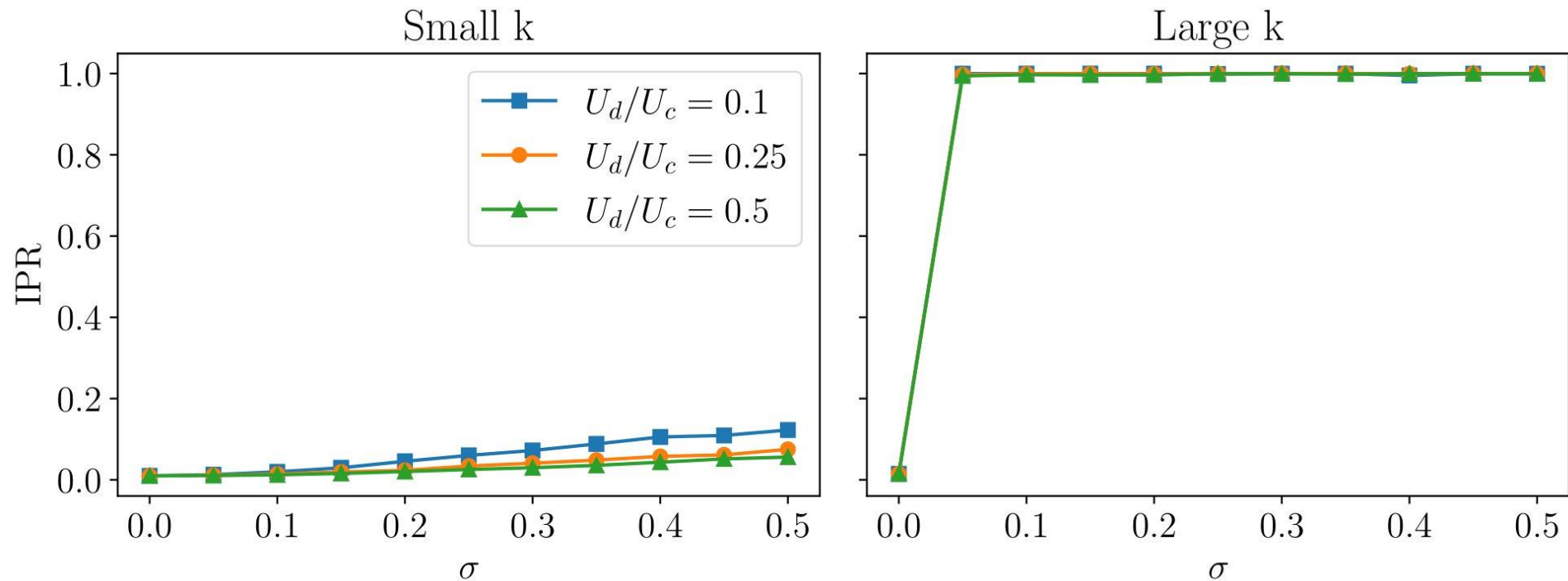- Lowest IPR vs system size (tubes number)

Dip Interaction

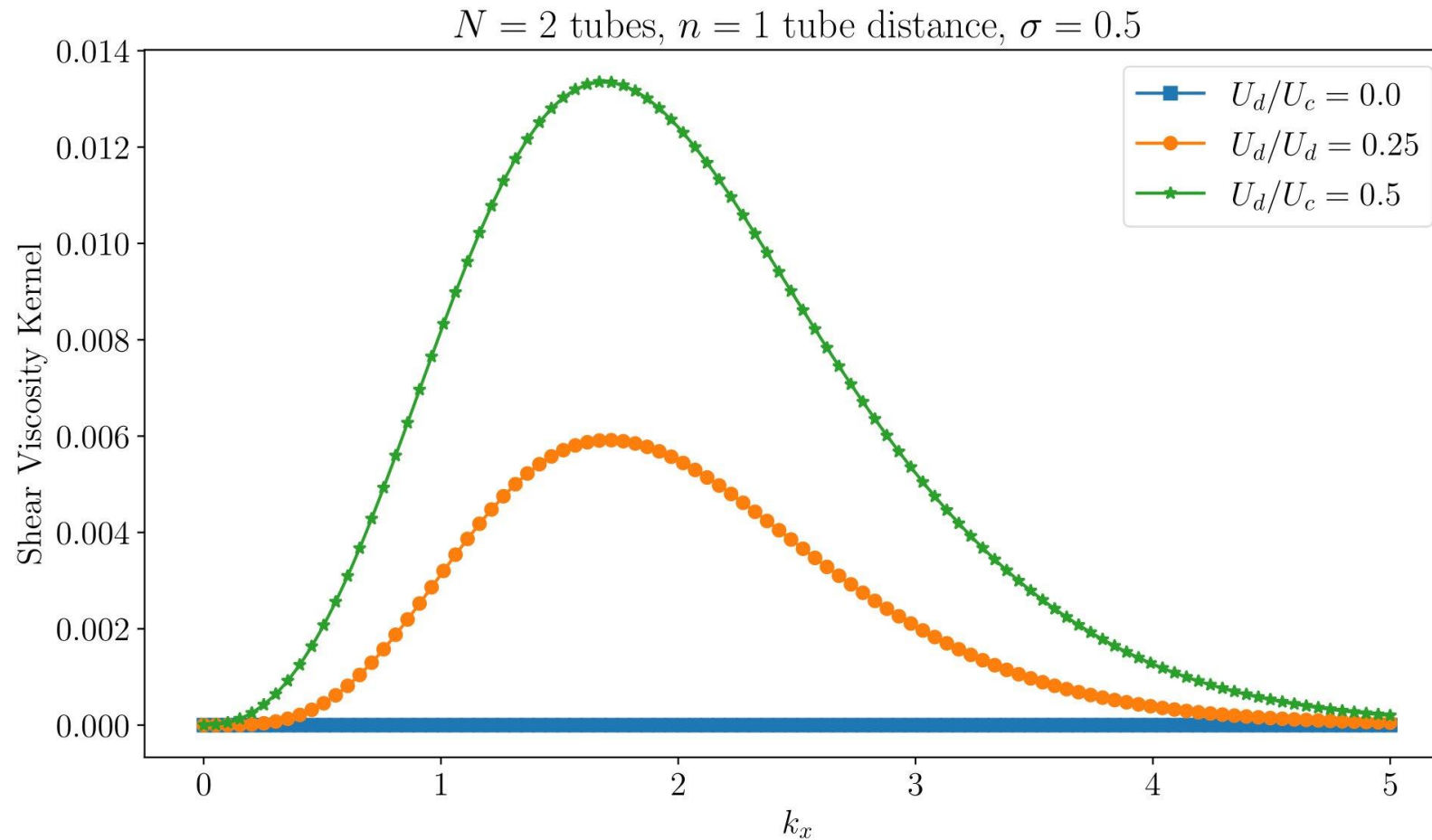• Lowest IPR vs dipolar interaction strength

Dip Interaction

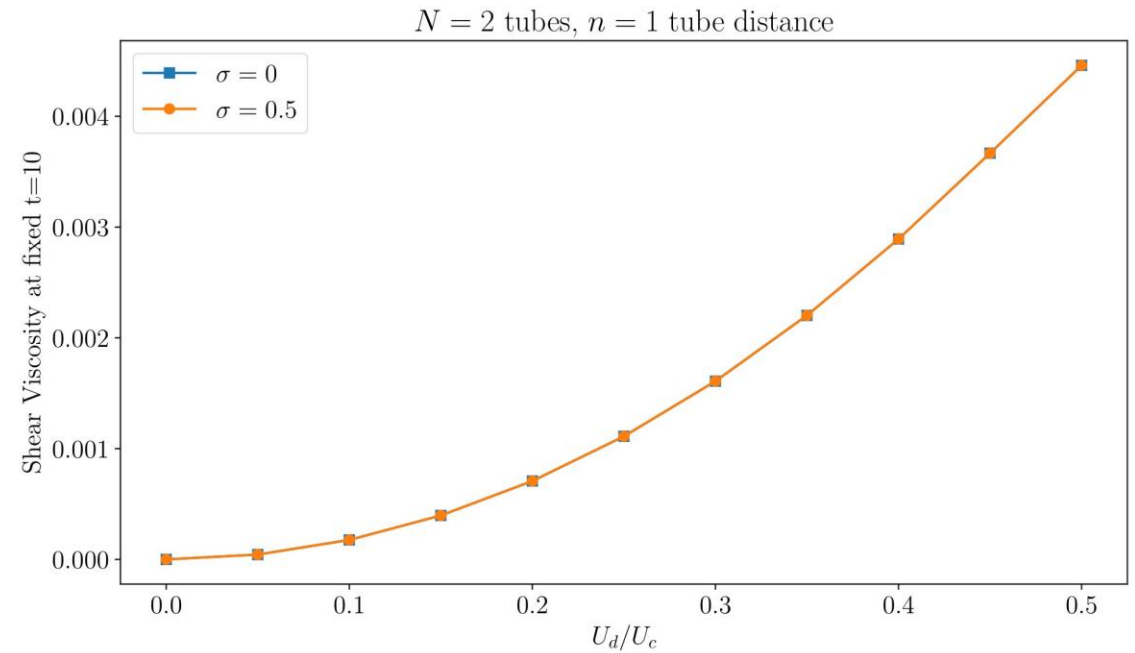- Lowest IPR vs disorder parameter magnitude

Dip Interaction

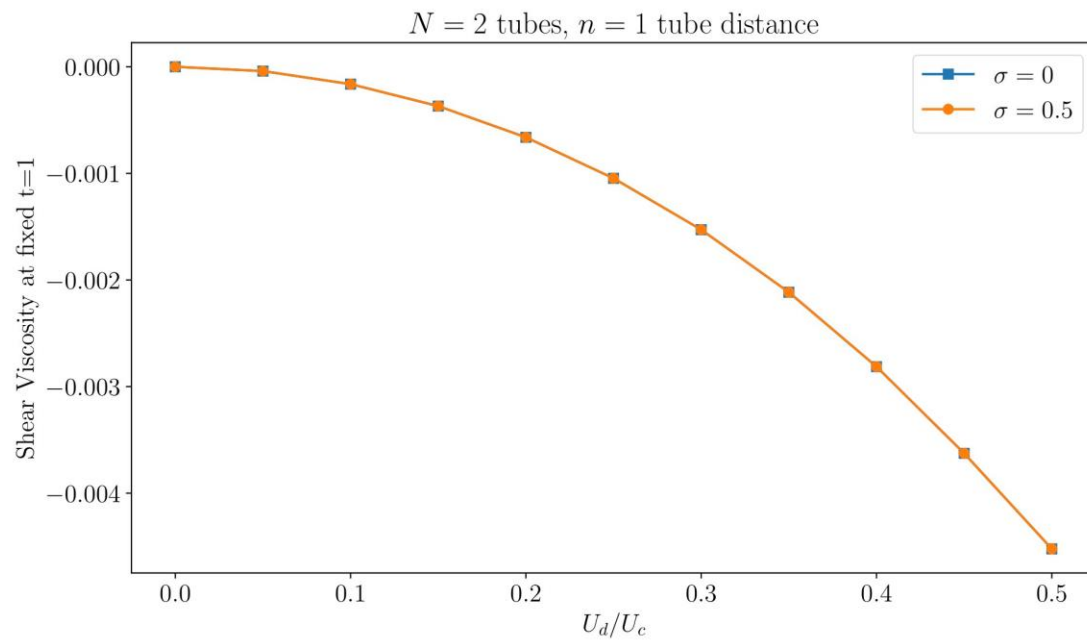- Shear viscosity kernel vs momentum

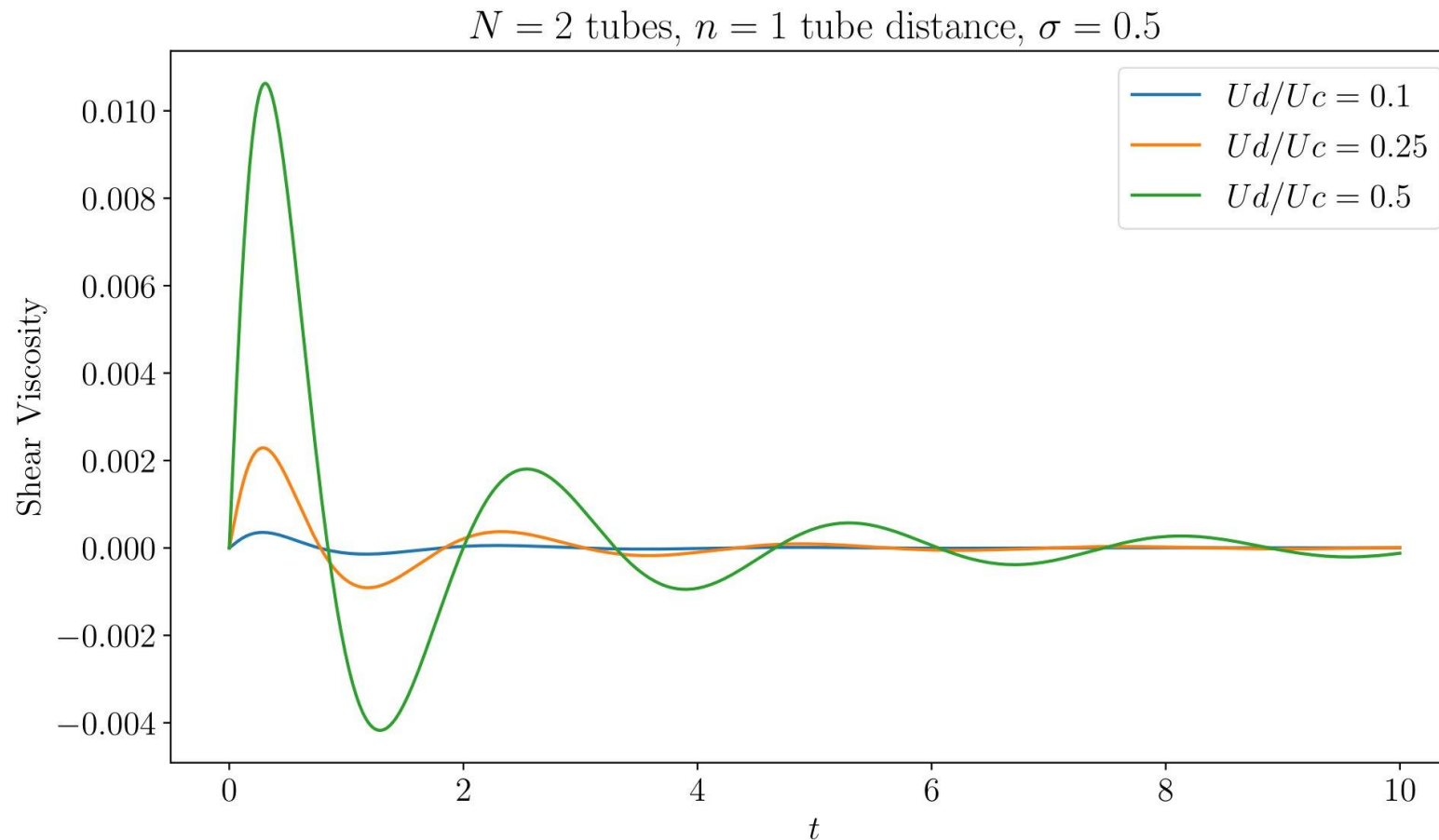$N = 2$ tubes, $n = 1$ tube distance, $\sigma = 0.5$
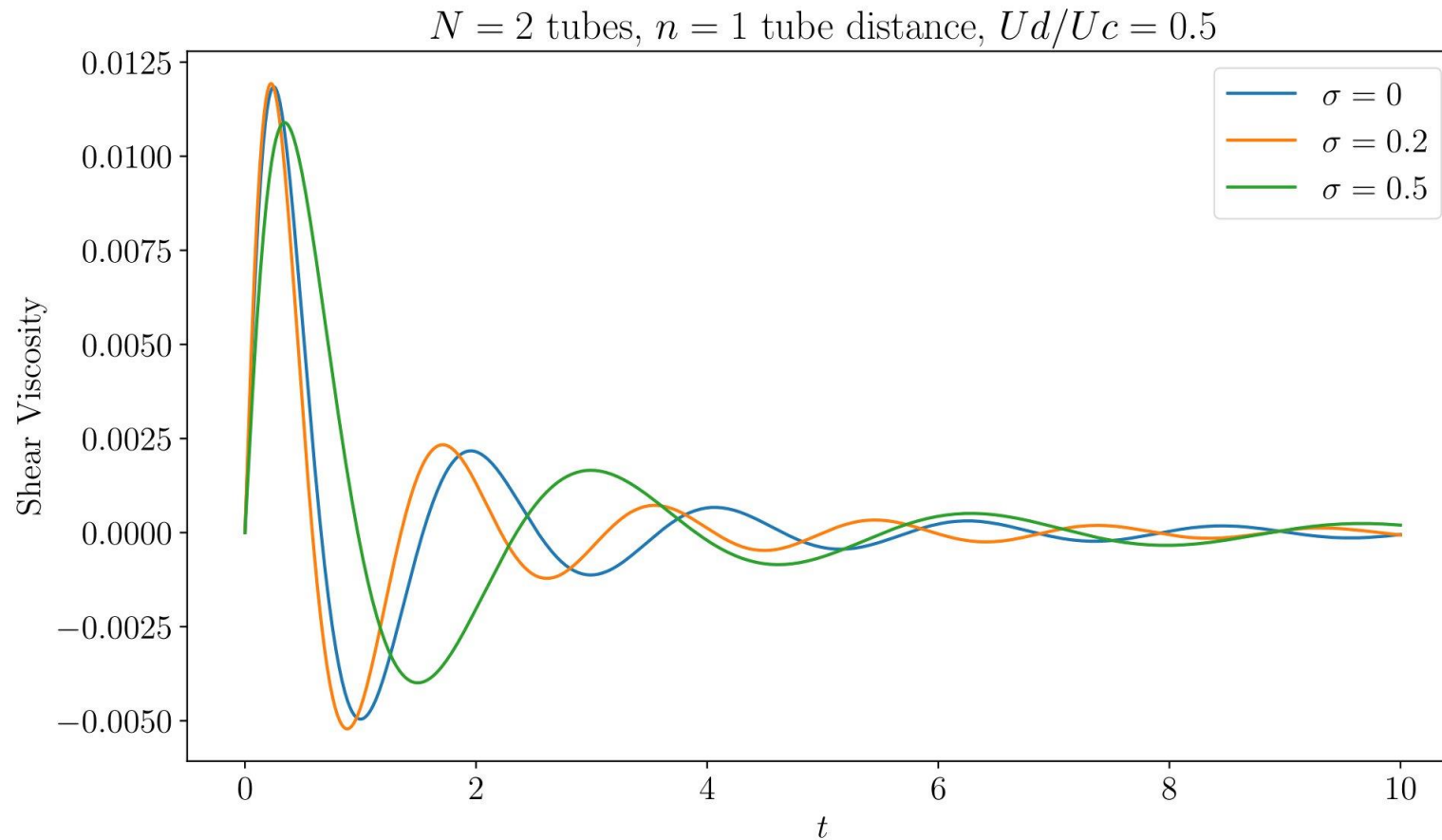
Dip Interaction

- Shear viscosity vs dipolar interaction strength

Dip Interaction

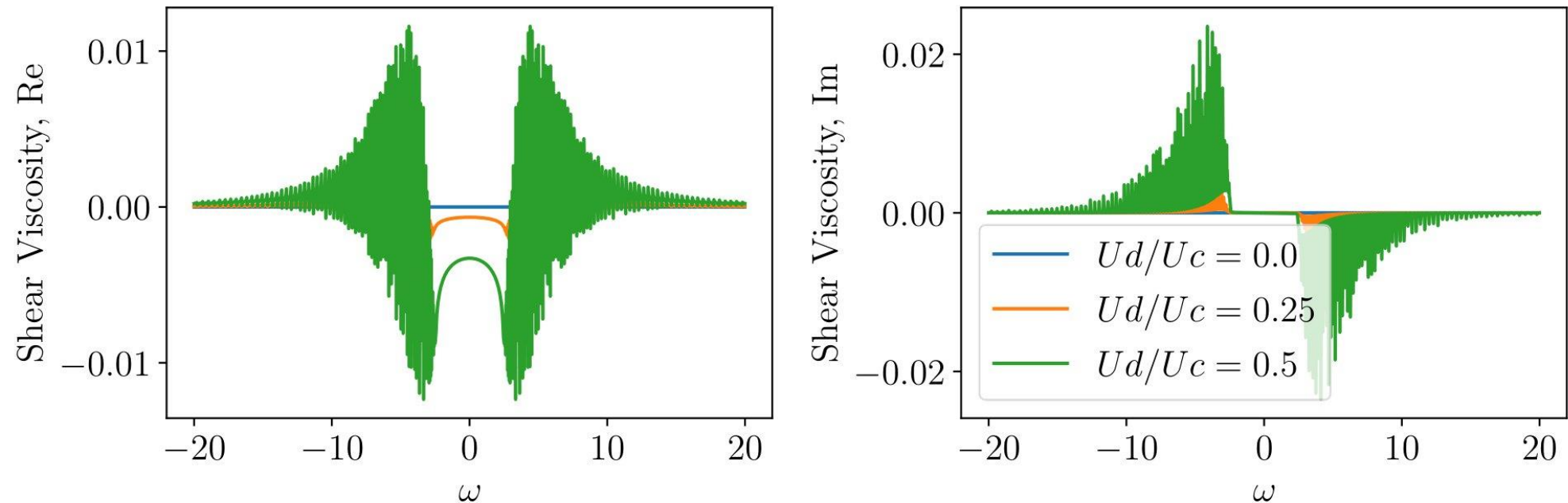- Shear viscosity vs t, for three values of Ud

Dip Interaction

- Shear viscosity vs t, for three values of sigma

$N = 2$ tubes, $n = 1$ tube distance, $Ud/Uc = 0.5$

Dip Interaction

- Time-Fourier transform of the viscosity vs omega

$N = 2$ tubes, $n = 1$ tube distance, $\sigma = 0.5$

Dip Interaction

- Shear viscosity vs tube distance