

INDIAN INSTITUTE OF TECHNOLOGY

(BANARAS HINDU UNIVERSITY)

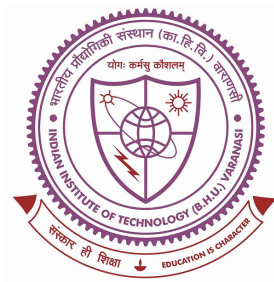
VARANASI, UTTAR PRADESH, INDIA 221005

Distinguishing Integrable and Non-Integrable systems using quantum quenches

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1 TFIM

1.1 $\langle m_z \rangle$ vs h

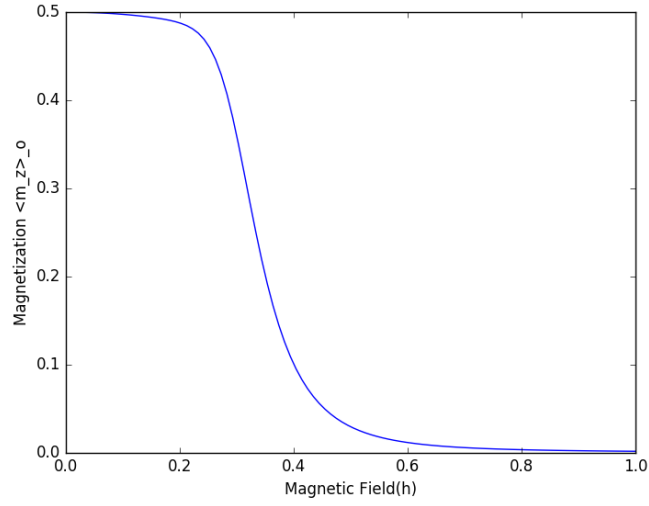
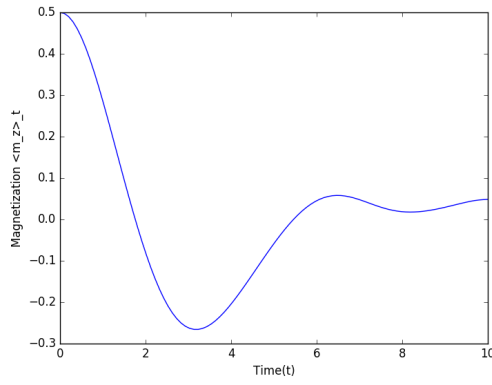
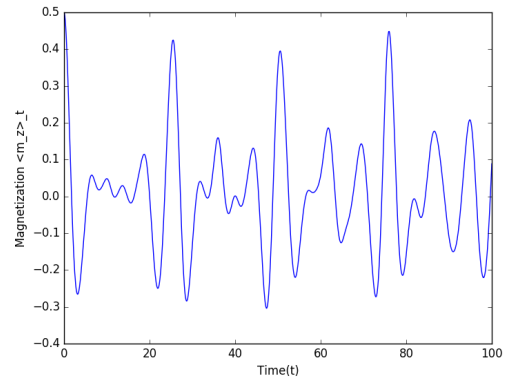


Figure 1: $N = 6, J = 1$.

1.2 $\langle m_z \rangle$ vs t



(a) $t = 10$ sec.



(b) $t = 100$ sec.

Figure 2: $N = 8, J = 1, h = 1$.

1.3 von Neuman entropy vs t

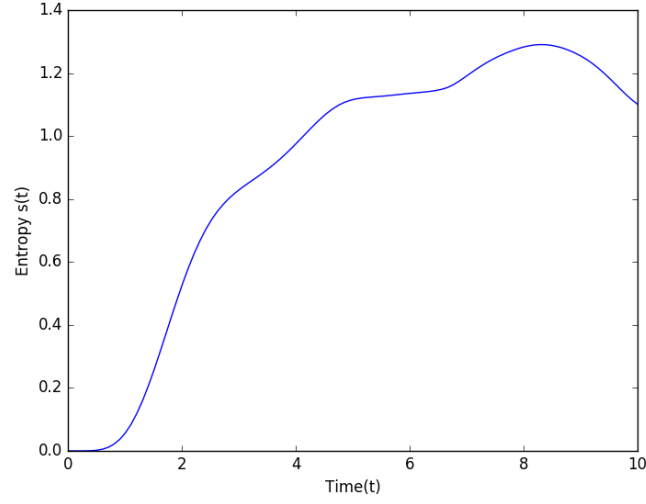


Figure 3: $N = 8, J = 1, h = 1$.

1.4 Time evolution of $\langle m_z \rangle$, S , $\langle s_c \rangle$, and l with quench at $\tau = 100$

1.4.1 Single run

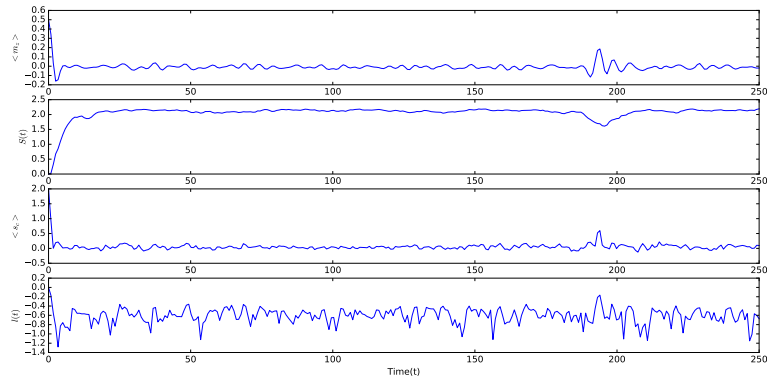


Figure 4: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

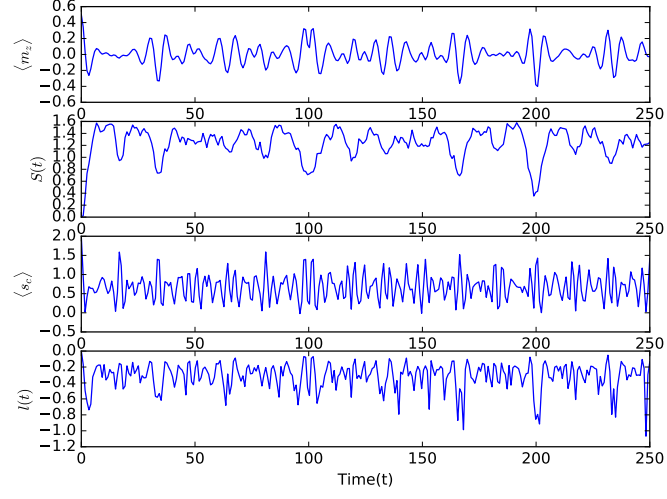


Figure 5: $N = 8, J = 1, h = 1, \delta h = 0.1$ without disorder.

1.4.2 Averaged over several runs

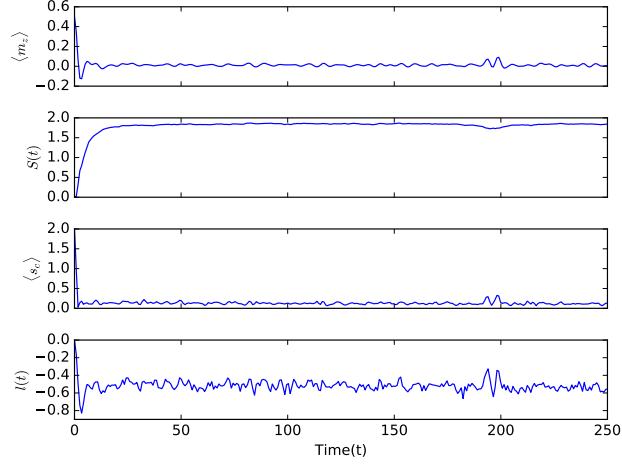


Figure 6: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$.

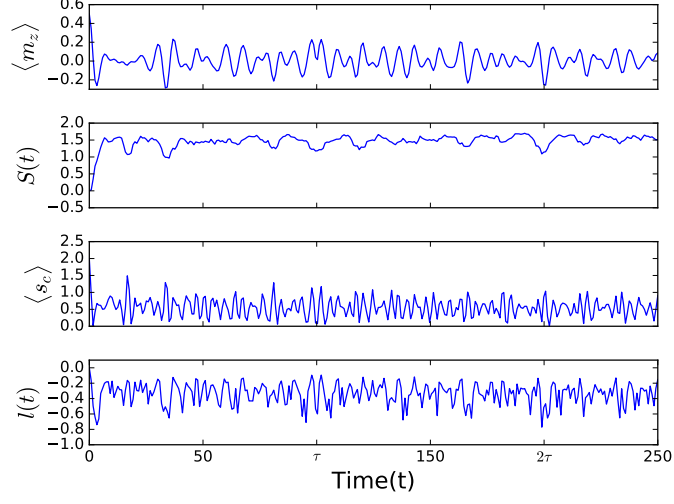


Figure 7: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

2 ANNNI

2.1 Time evolution of $\langle m_z \rangle$, S , $\langle s_c \rangle$, and l with quench at $\tau = 100$

2.1.1 Single run

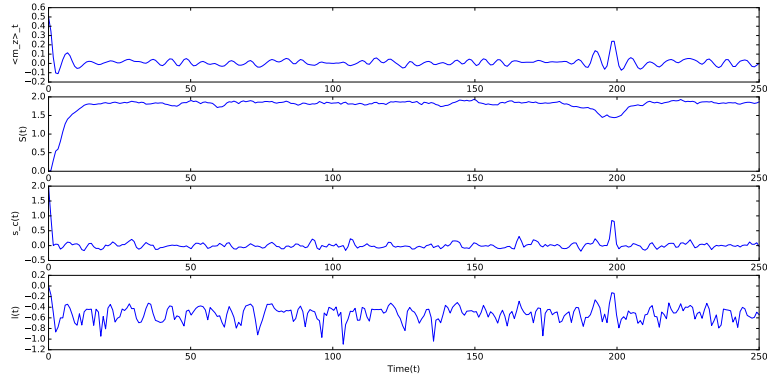


Figure 8: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

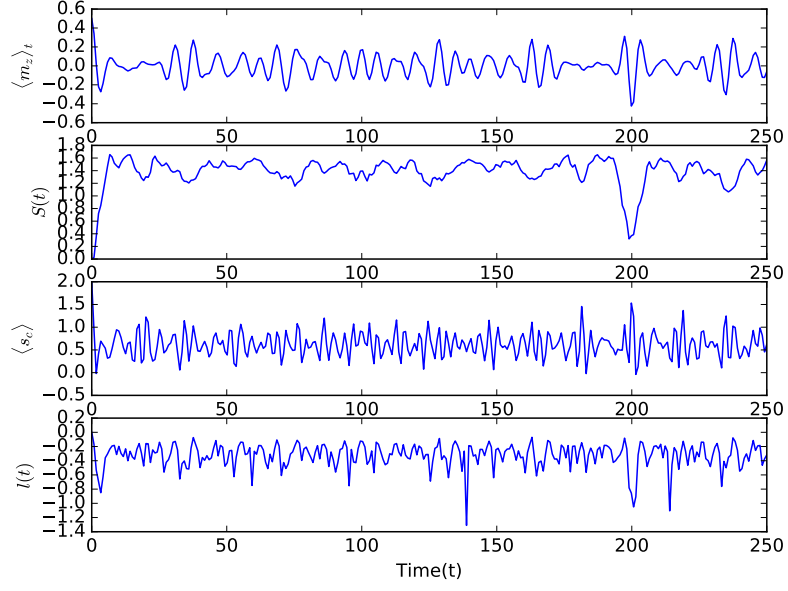


Figure 9: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ without disorder.

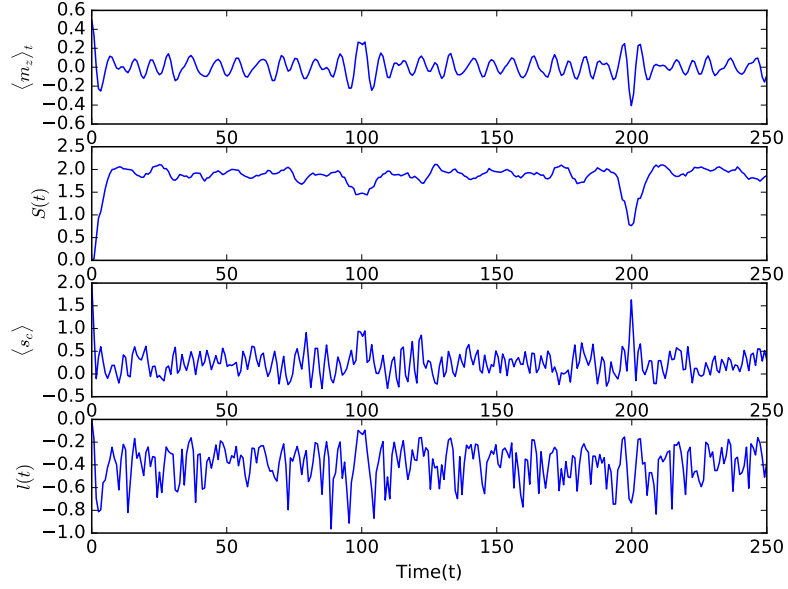


Figure 10: $N = 8, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ without disorder.

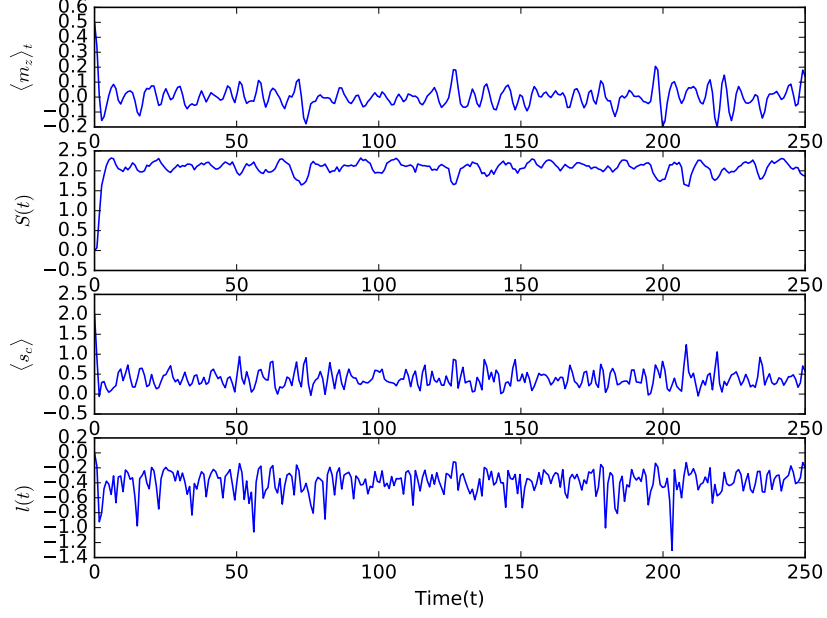


Figure 11: $N = 8, J = 1, J' = 1, h = 1, \delta h = 0.1$ without disorder.

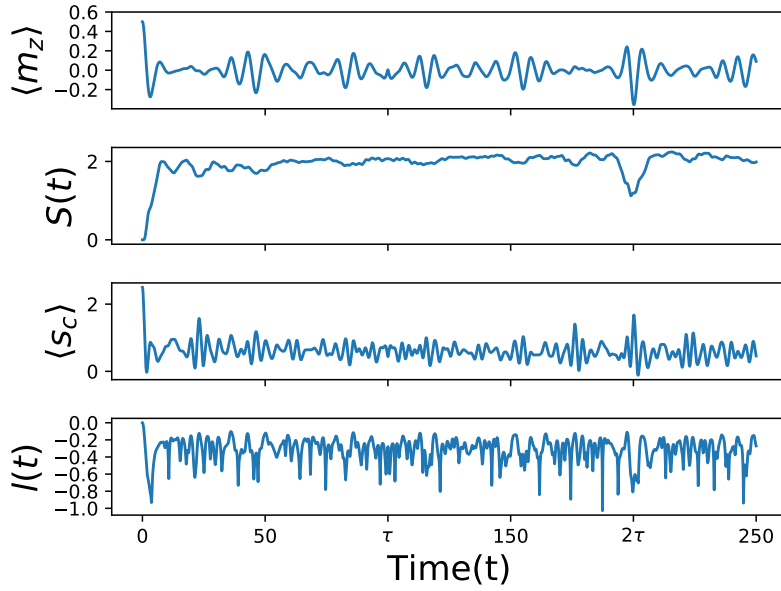


Figure 12: $N = 10, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ and sampling points 3000.

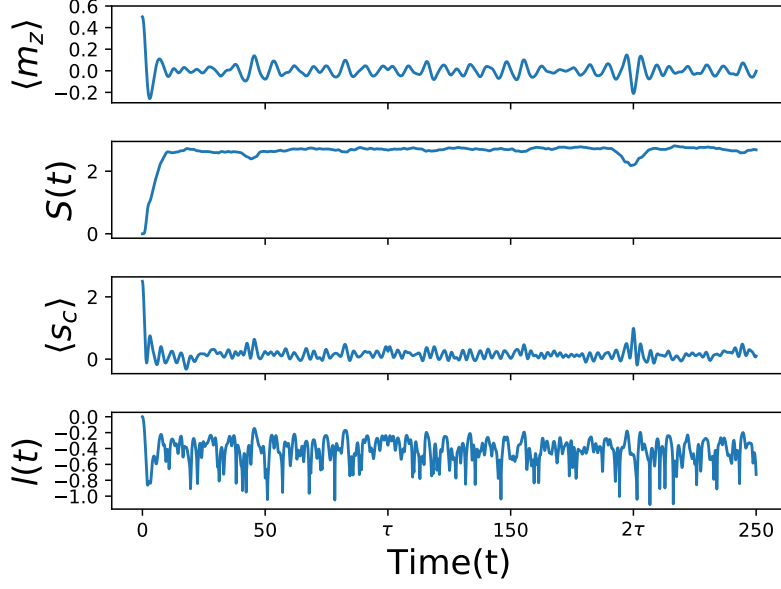


Figure 13: $N = 10, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ and sampling points 3000.

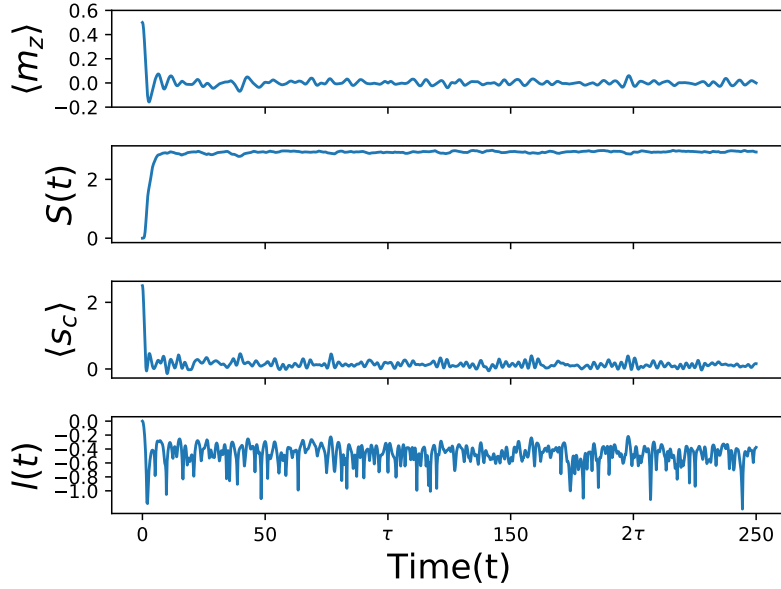


Figure 14: $N = 10, J = 1, J' = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ and sampling points 3000.

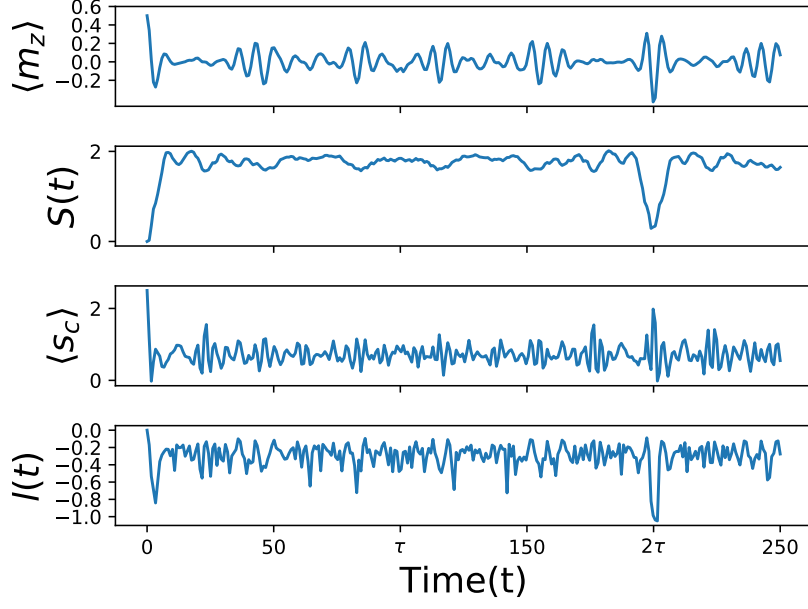


Figure 15: $N = 10, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ without disorder.

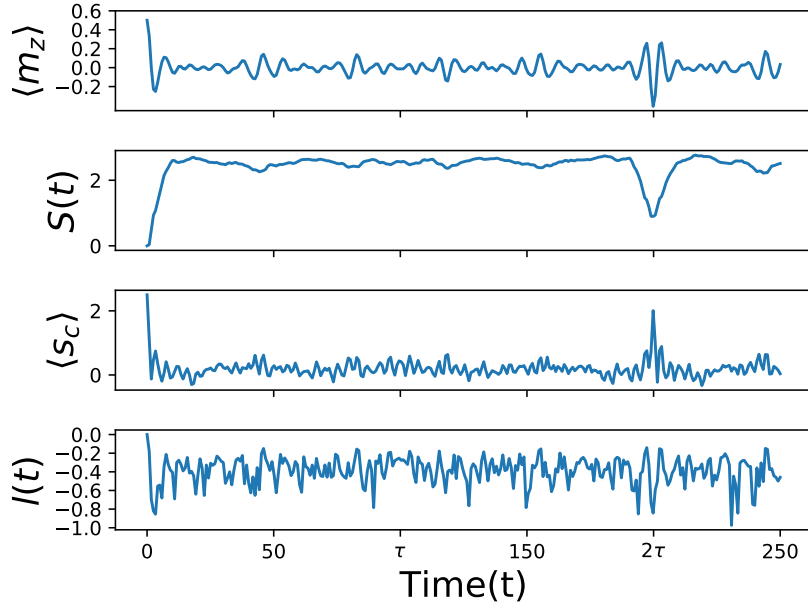


Figure 16: $N = 10, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ without disorder.

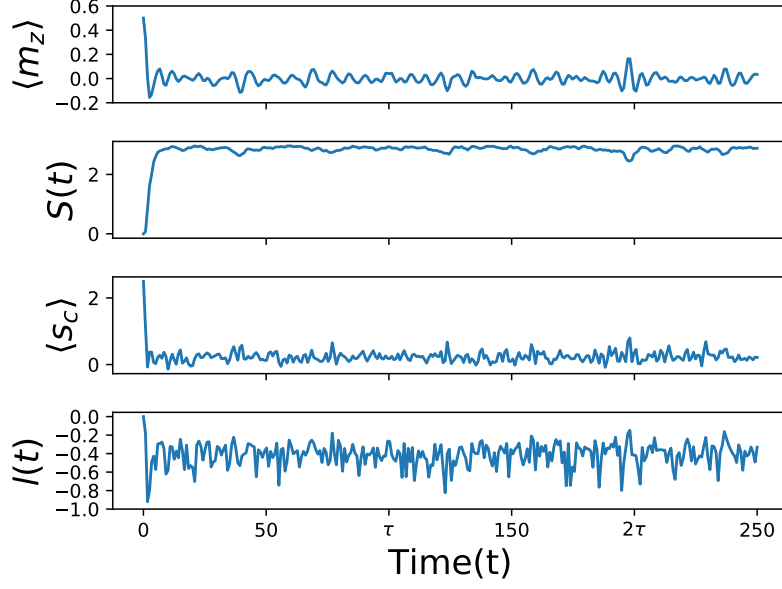


Figure 17: $N = 10, J = 1, J' = 1, h = 1, \delta h = 0.1$ without disorder.

2.1.2 Averaged over several runs

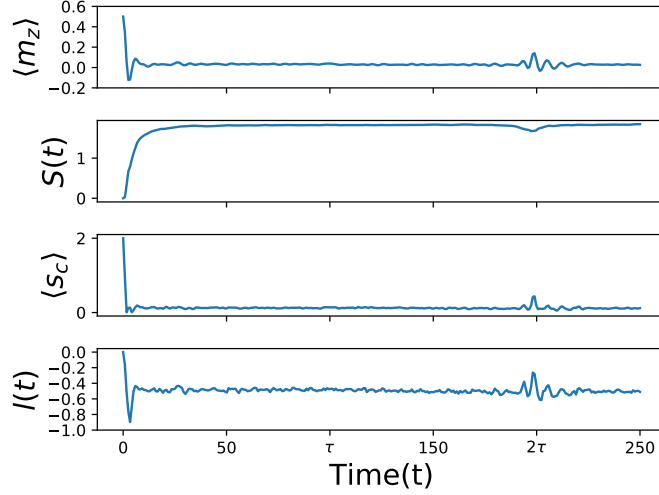


Figure 18: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

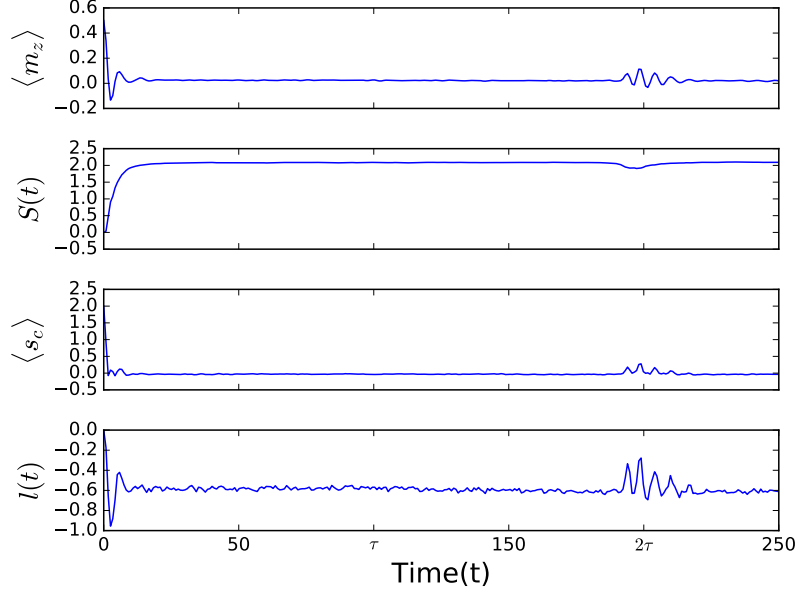


Figure 19: $N = 8, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

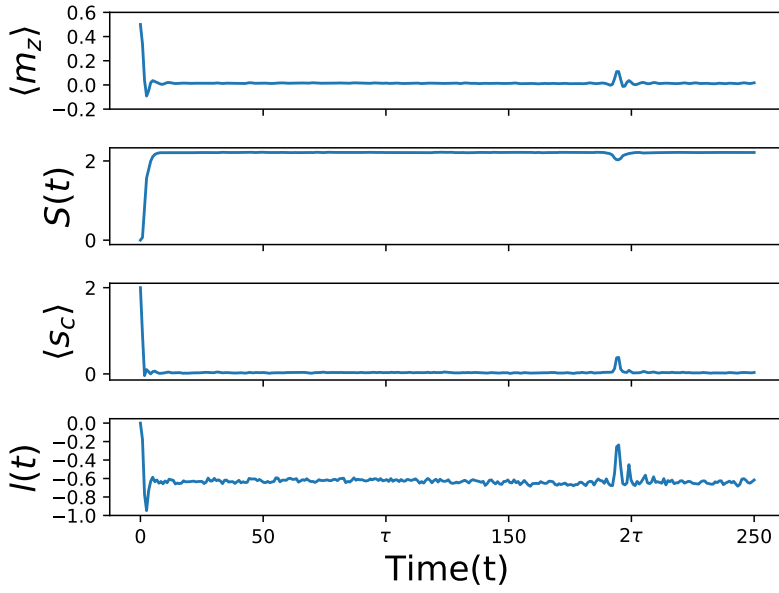


Figure 20: $N = 8, J = 1, J' = 1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

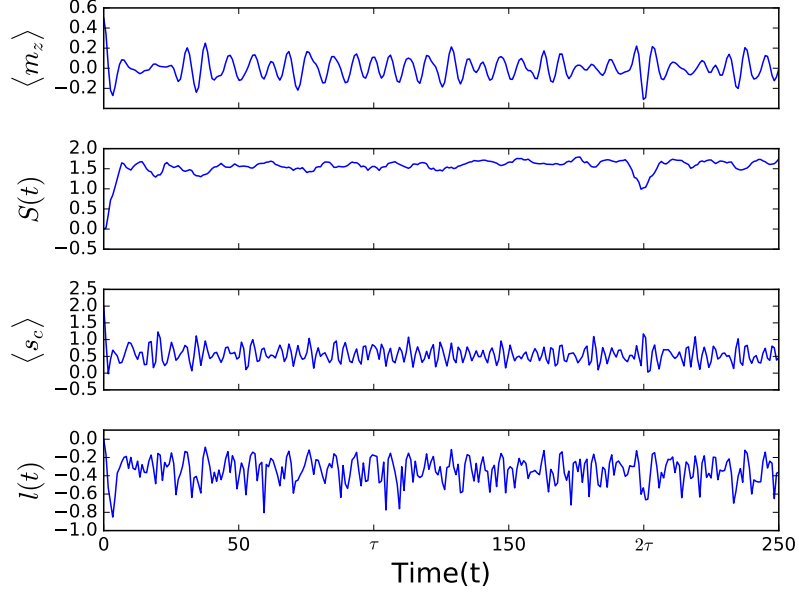


Figure 21: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

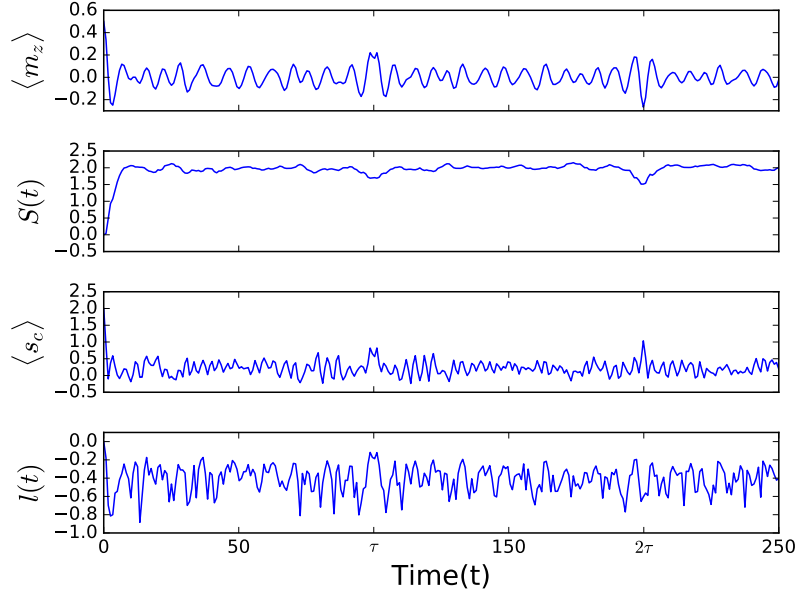


Figure 22: $N = 8, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

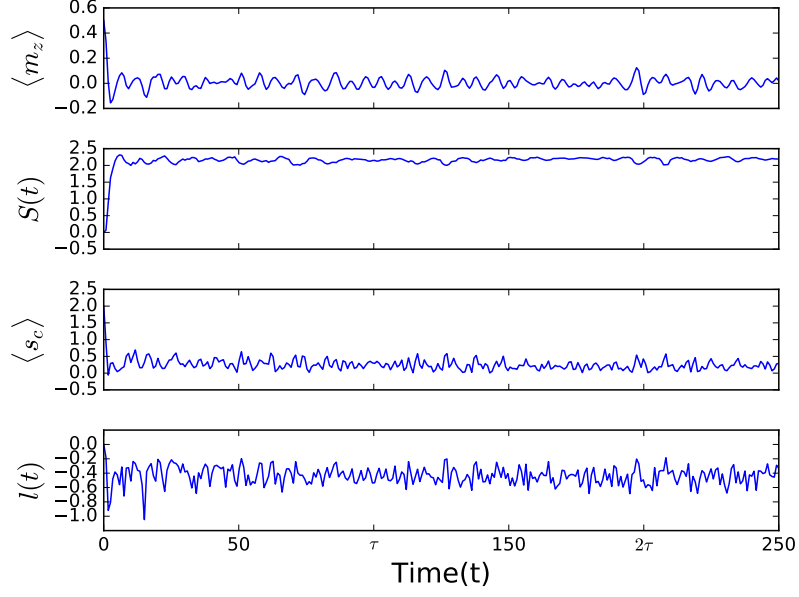


Figure 23: $N = 8, J = 1, J' = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

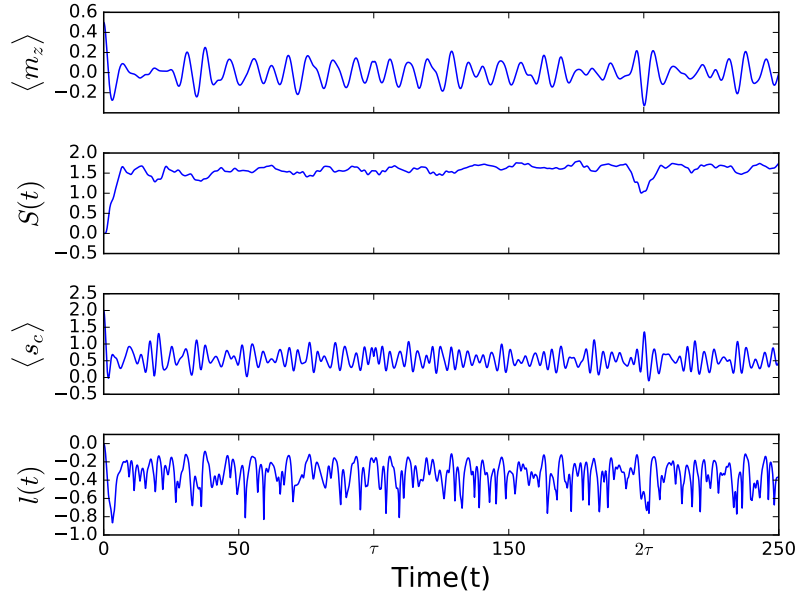


Figure 24: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ and sampling points 3000.

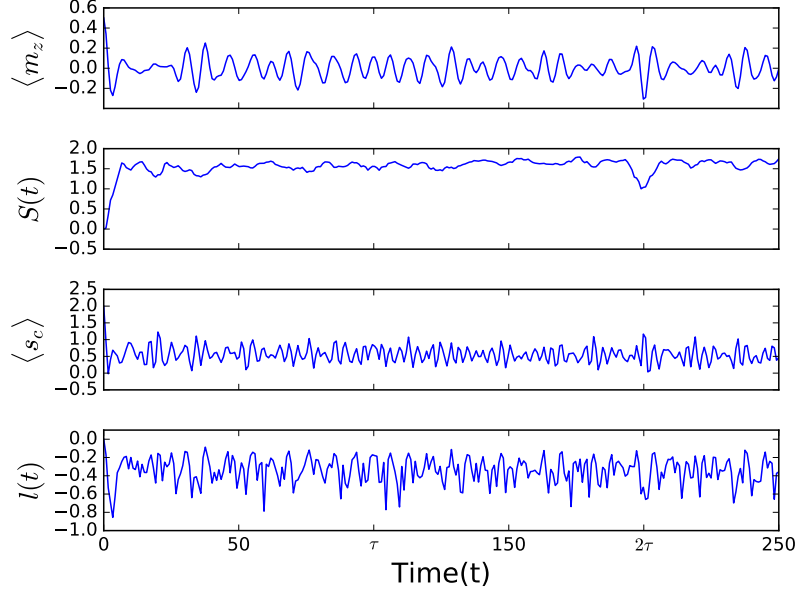


Figure 25: $N = 8, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 1000 realizations.

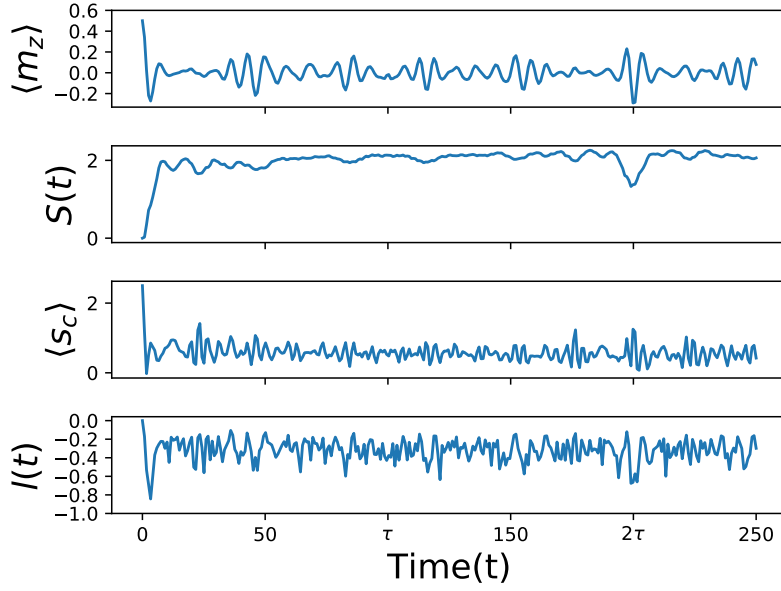


Figure 26: $N = 10, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

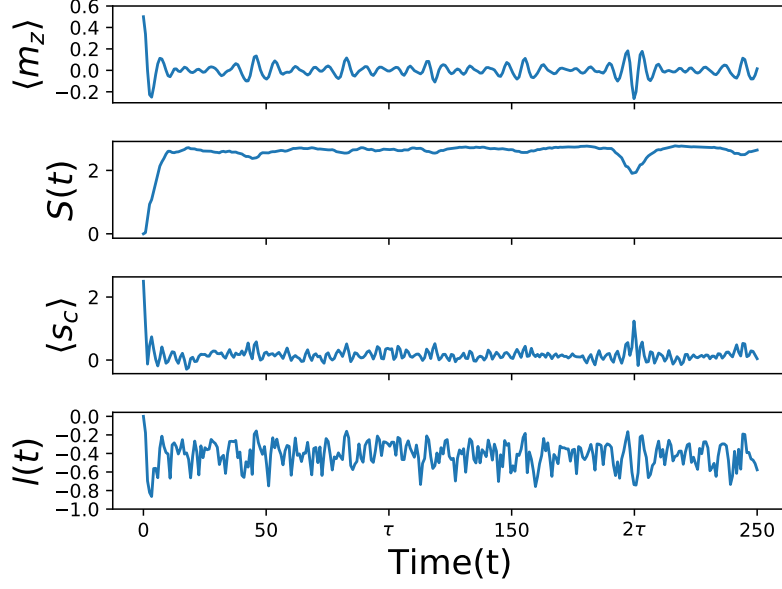


Figure 27: $N = 10, J = 1, J' = 0.5, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

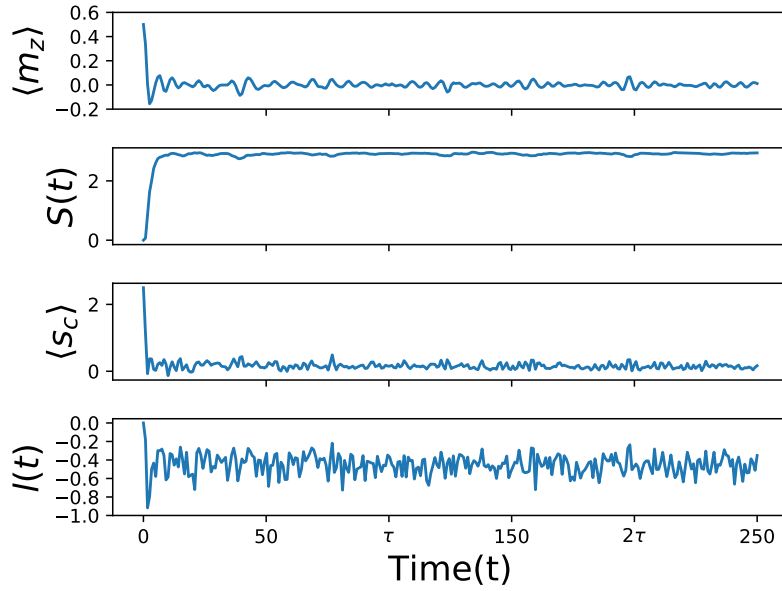


Figure 28: $N = 10, J = 1, J' = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$.

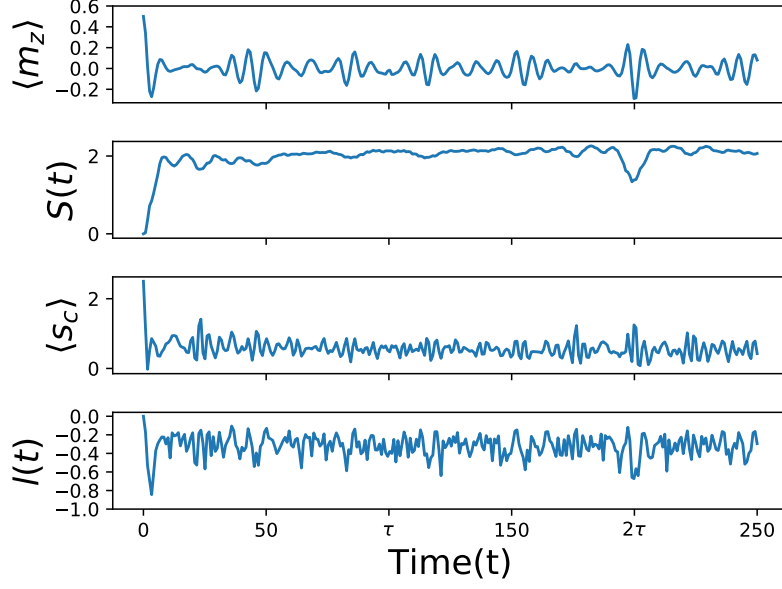


Figure 29: $N = 10, J = 1, J' = 0.1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 1000 realizations.

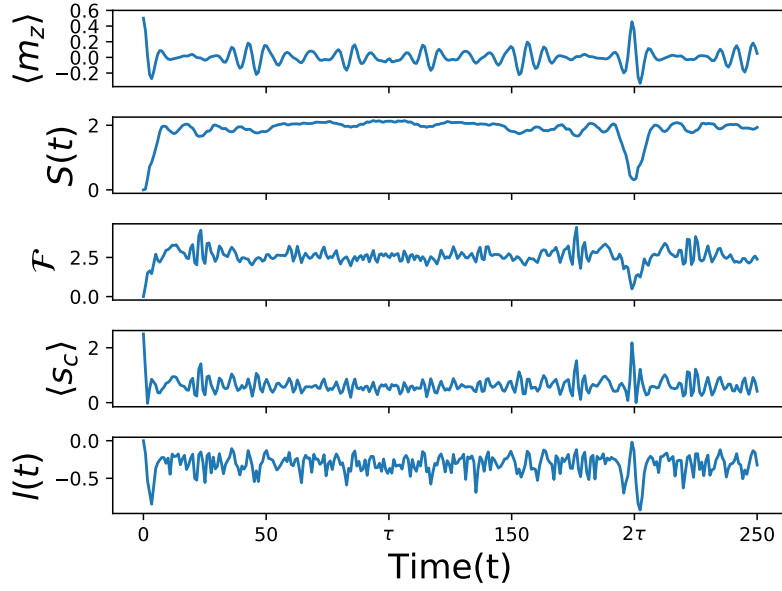


Figure 30: $N = 10, J = 1, J' = 0.1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$.

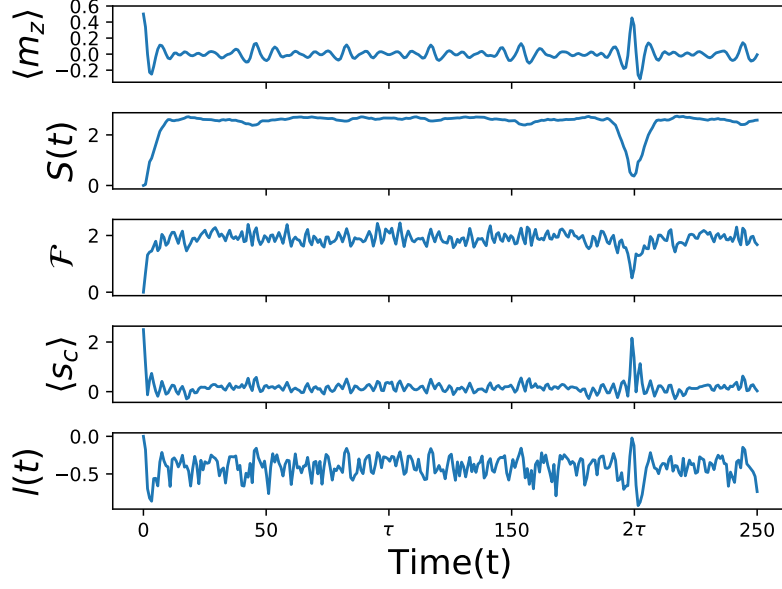


Figure 31: $N = 10, J = 1, J' = 0.5, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$.

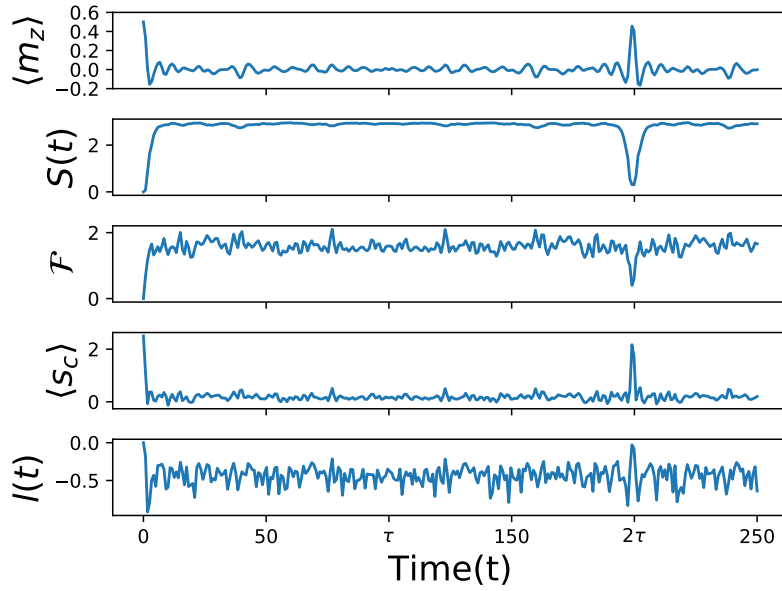


Figure 32: $N = 10, J = 1, J' = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$.

2.2 S_{min} vs J'

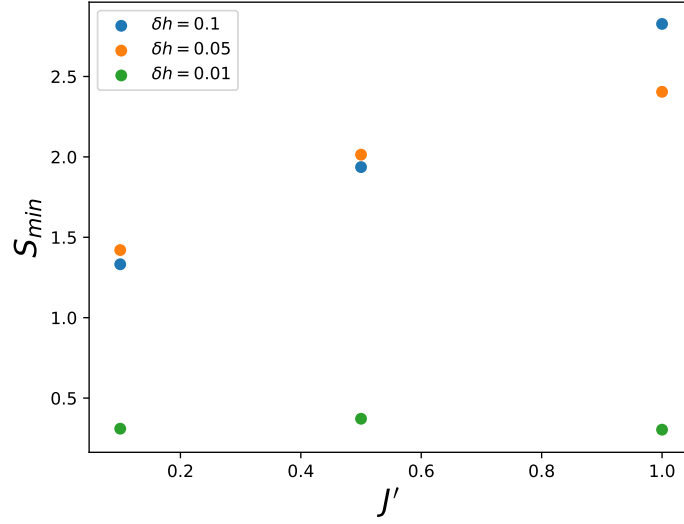


Figure 33: $N = 10, J = 1, h = 1, \tau = 100$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

2.3 $\langle m_z \rangle_{max}$ vs J'

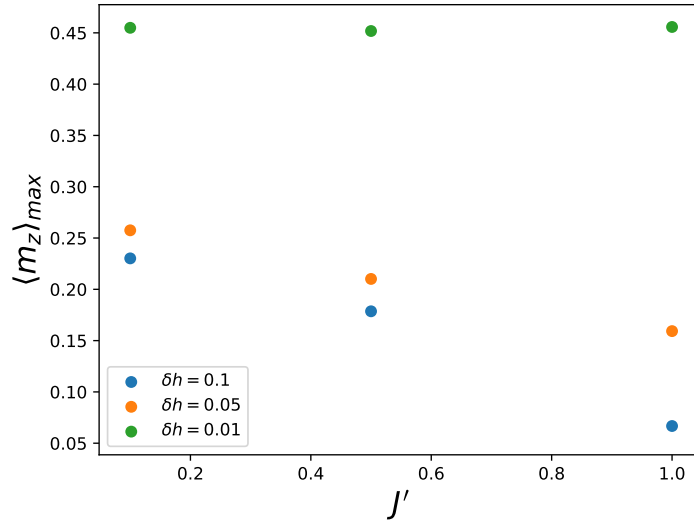


Figure 34: $N = 10, J = 1, h = 1, \tau = 100$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

2.4 S_{min} vs τ

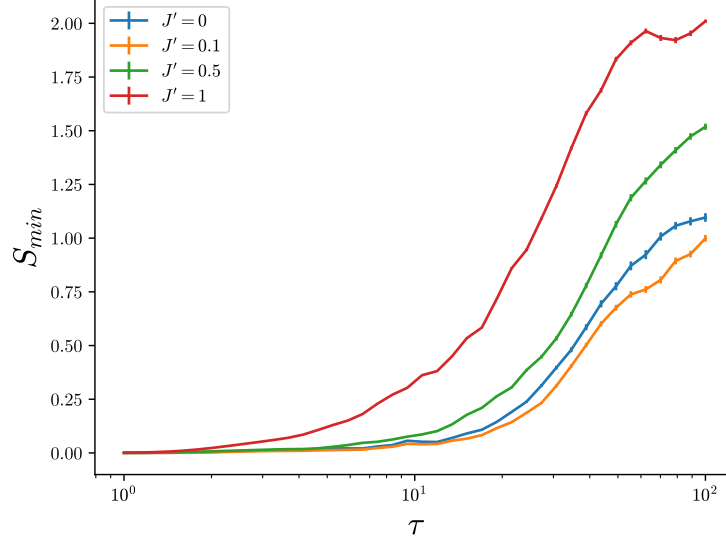


Figure 35: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

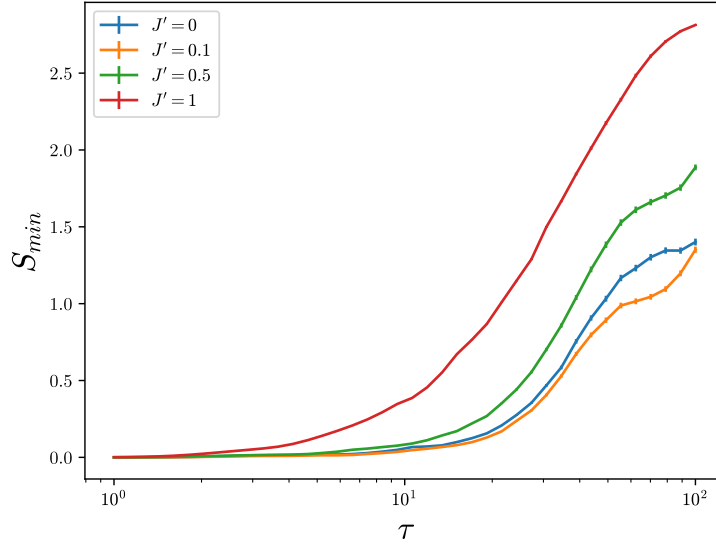


Figure 36: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

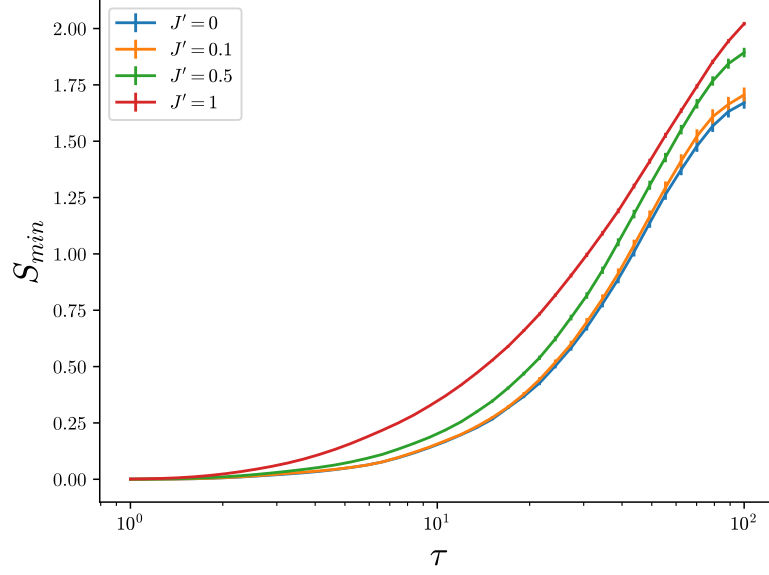


Figure 37: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

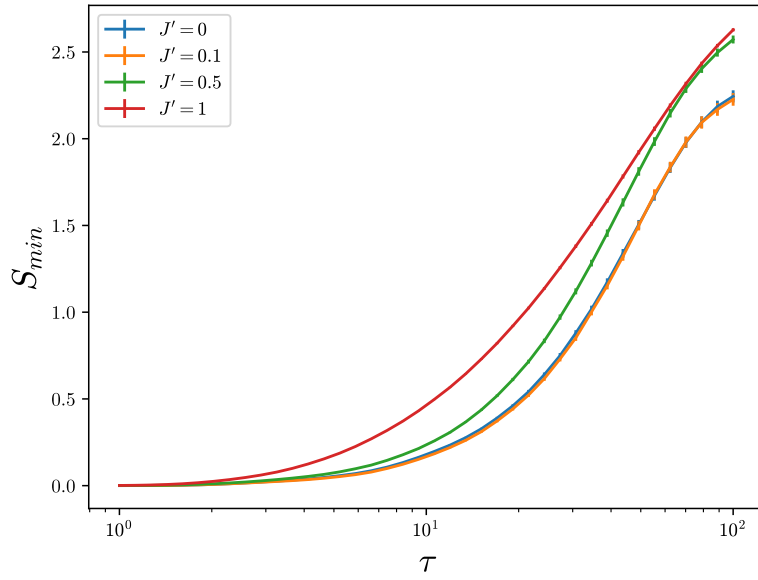


Figure 38: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

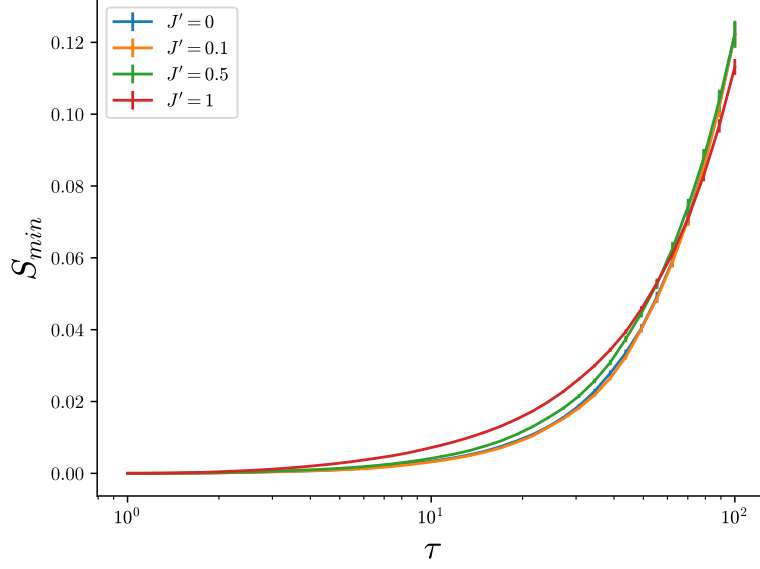


Figure 39: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

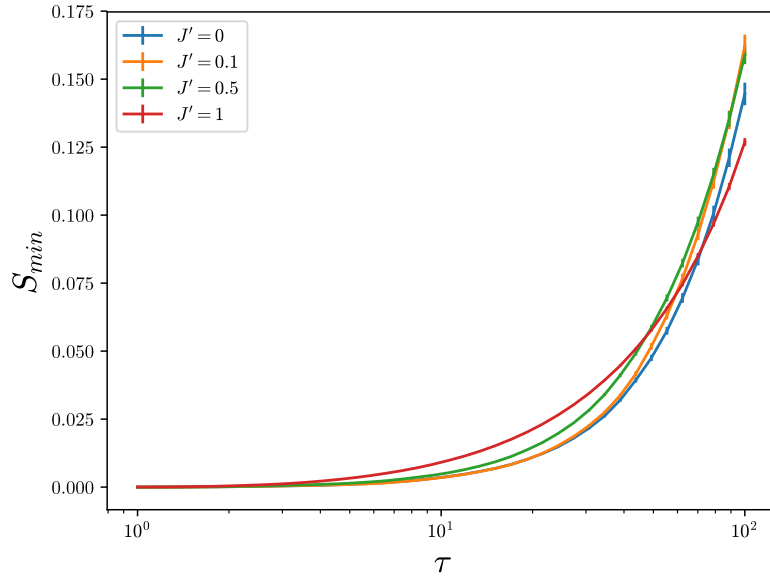


Figure 40: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

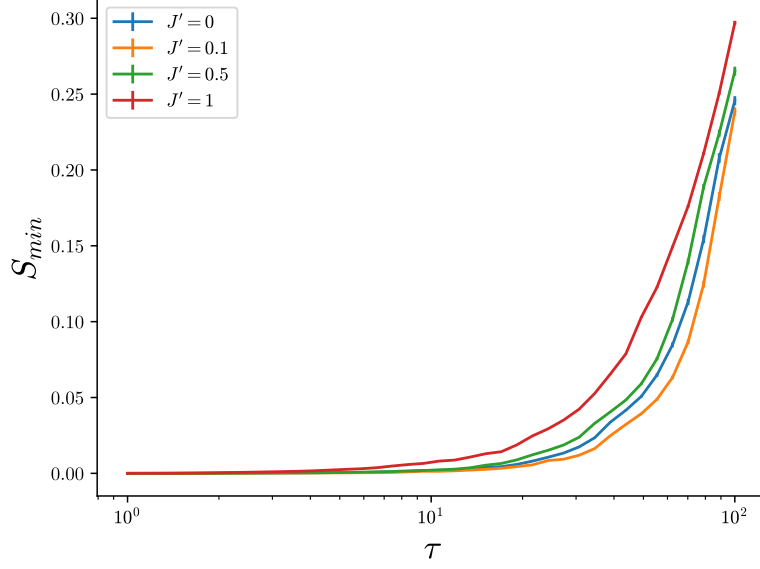


Figure 41: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

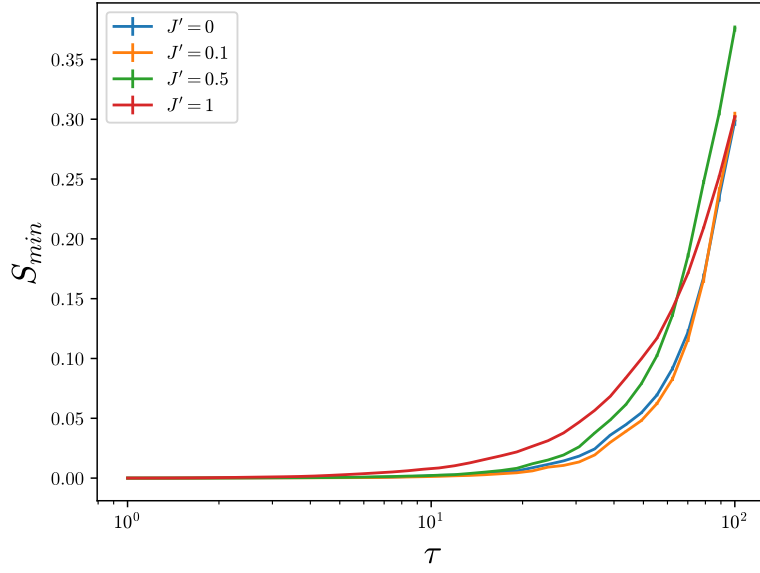


Figure 42: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

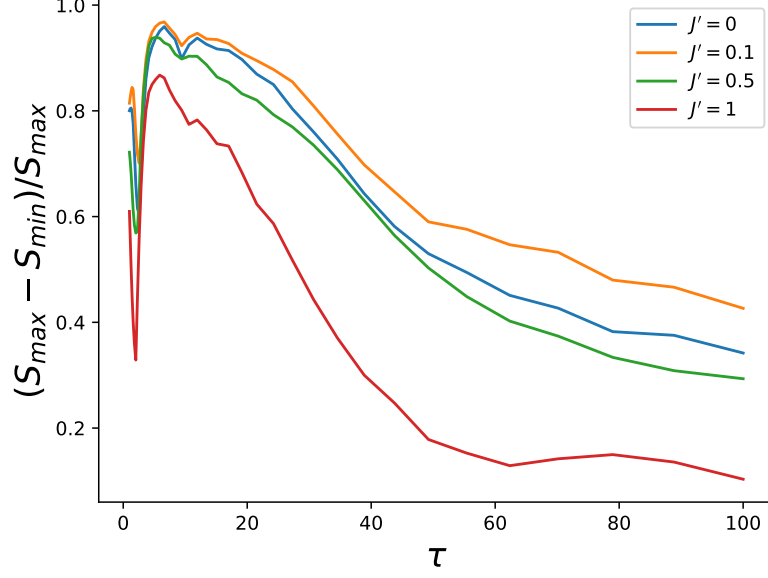


Figure 43: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations. S_{max} also calculated in window.

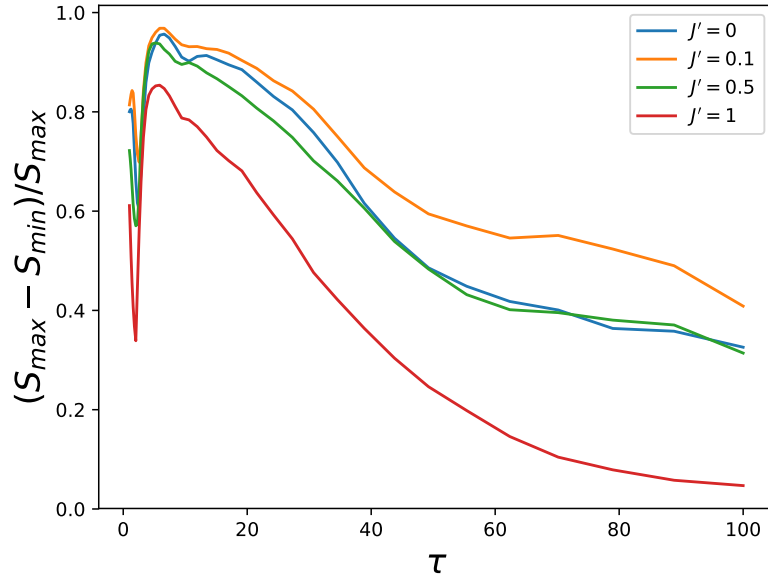


Figure 44: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations. S_{max} also calculated in window.

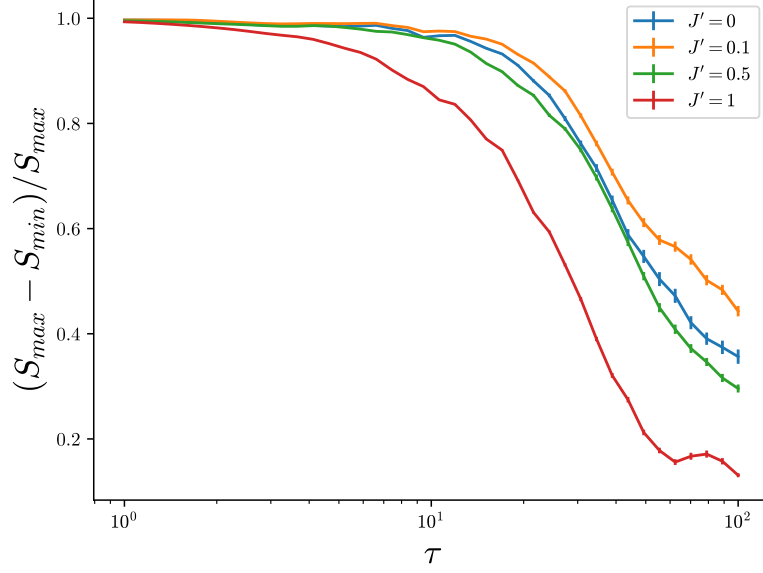


Figure 45: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

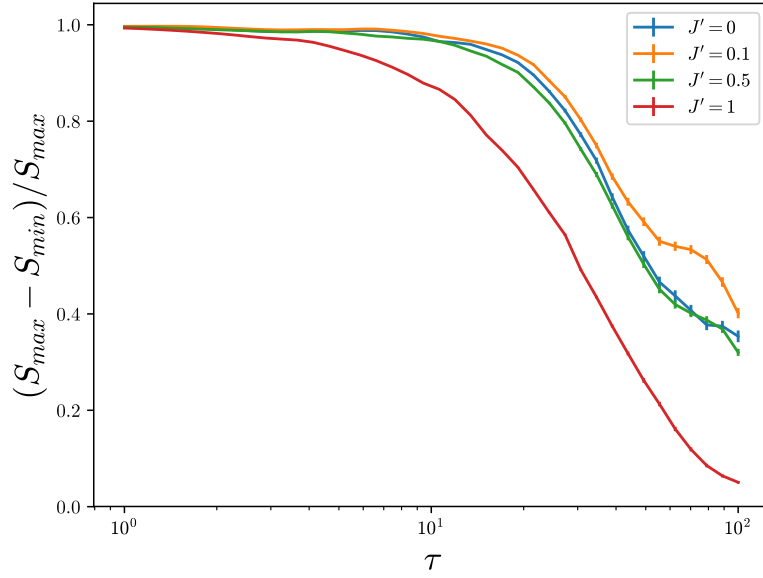


Figure 46: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

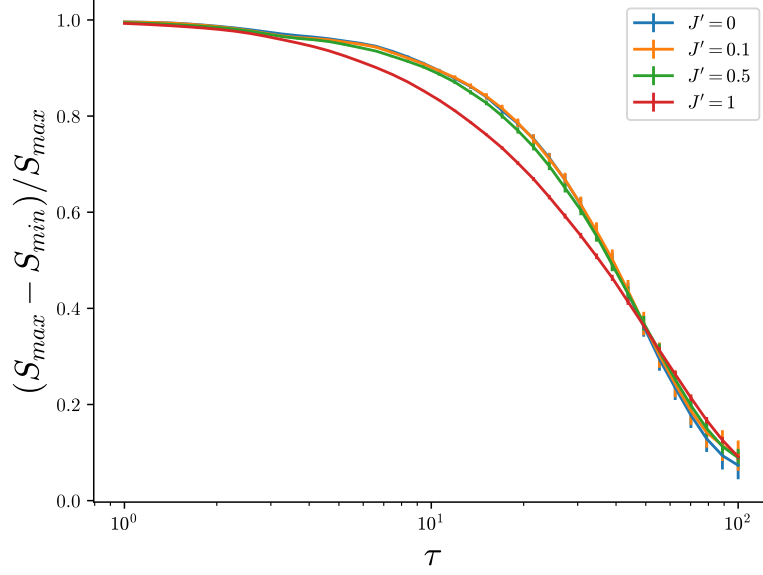


Figure 47: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

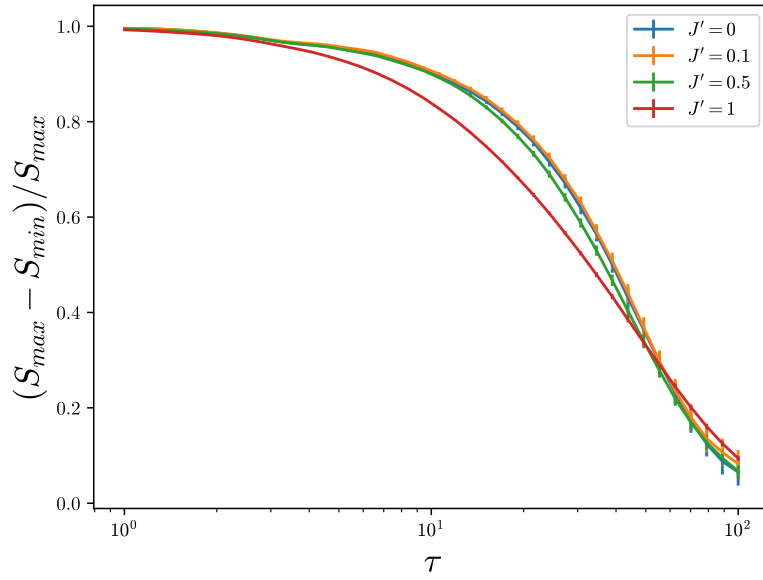


Figure 48: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

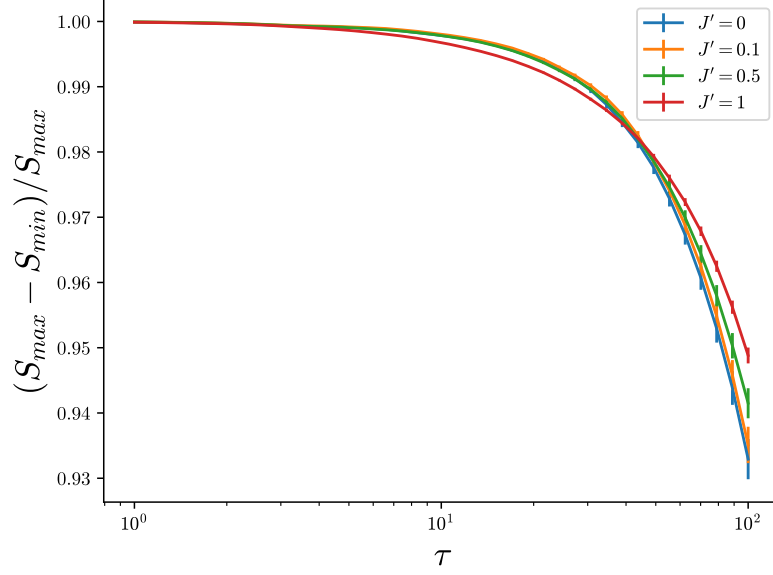


Figure 49: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

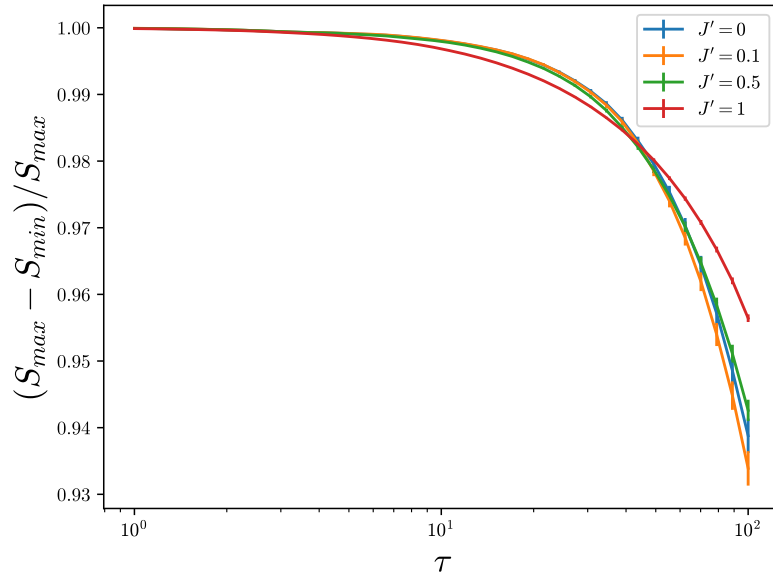


Figure 50: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

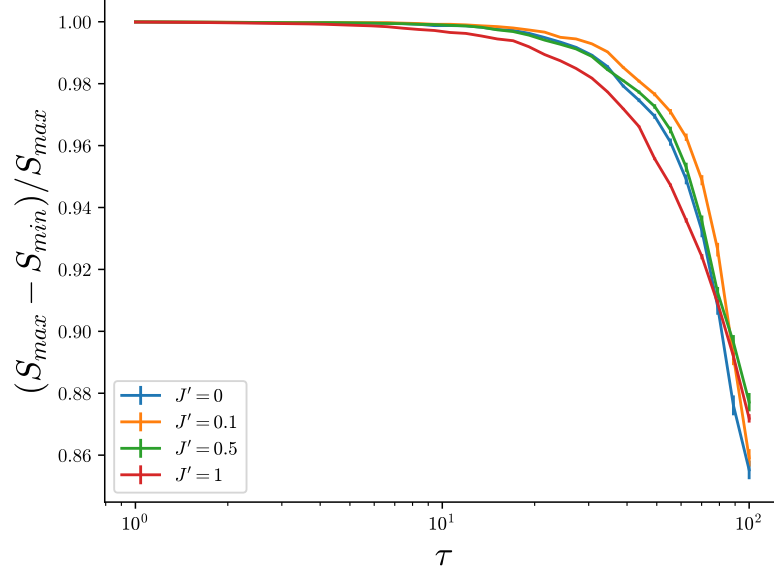


Figure 51: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

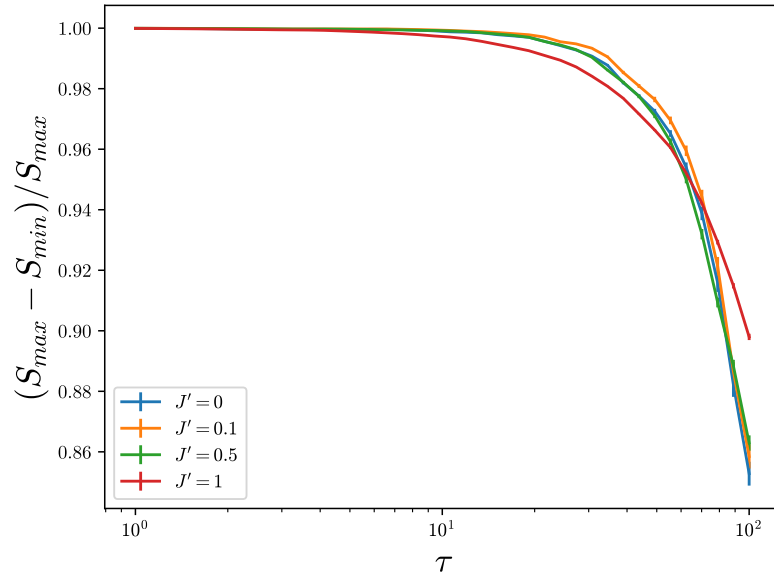


Figure 52: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

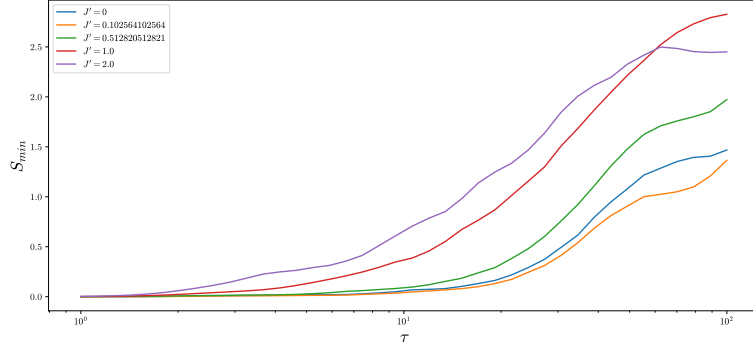


Figure 53: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

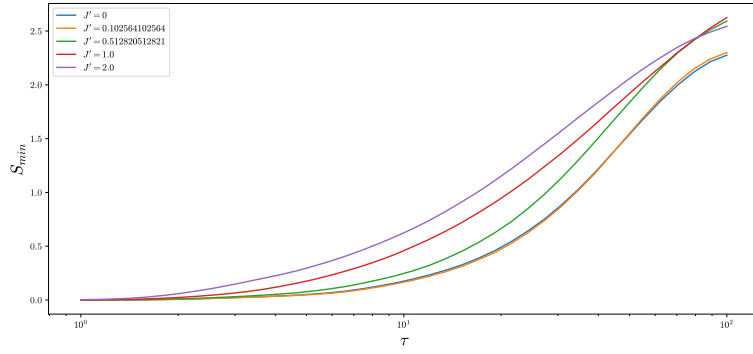


Figure 54: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

2.5 S_{min} vs τ vs J'

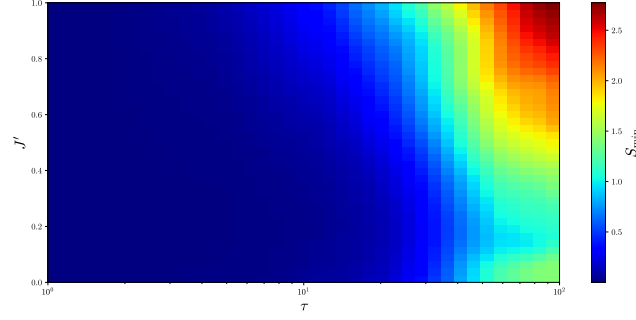


Figure 55: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

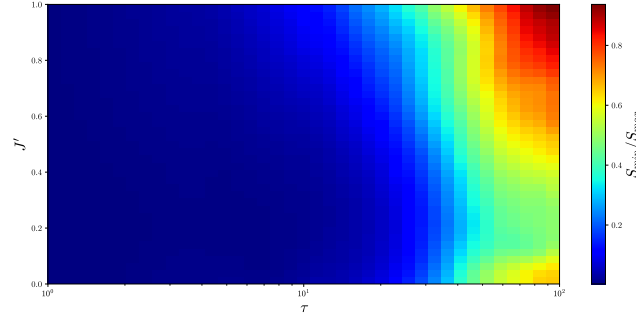


Figure 56: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

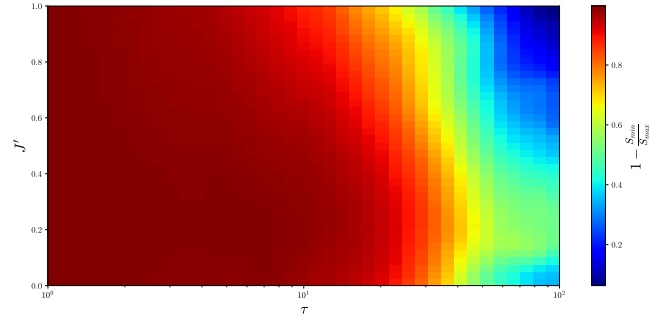


Figure 57: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

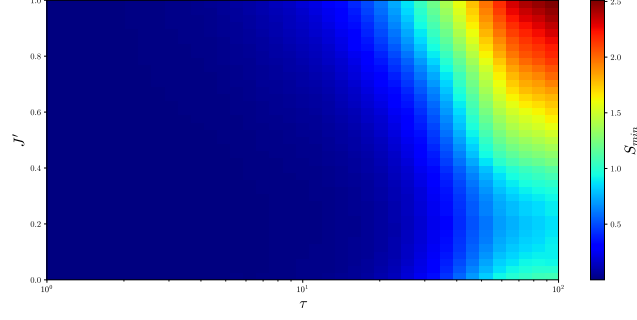


Figure 58: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

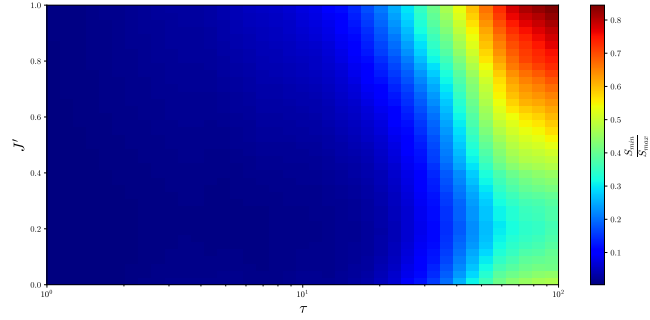


Figure 59: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

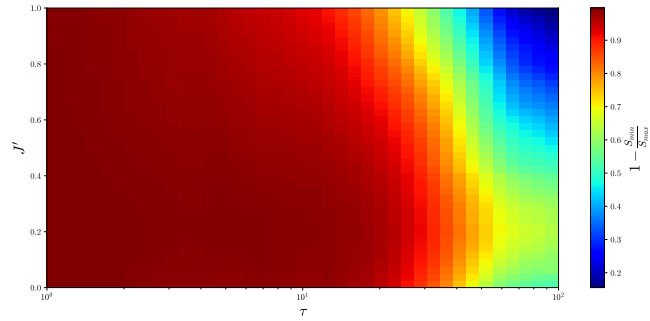


Figure 60: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

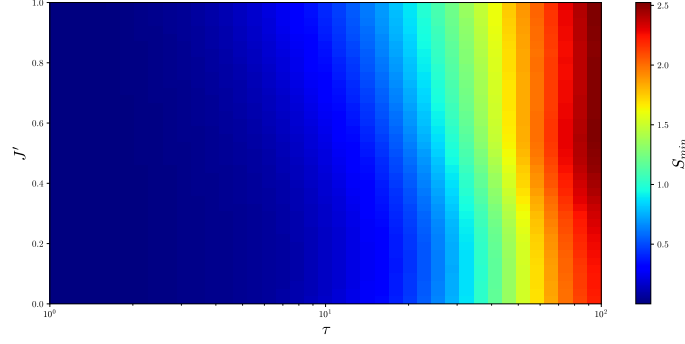


Figure 61: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

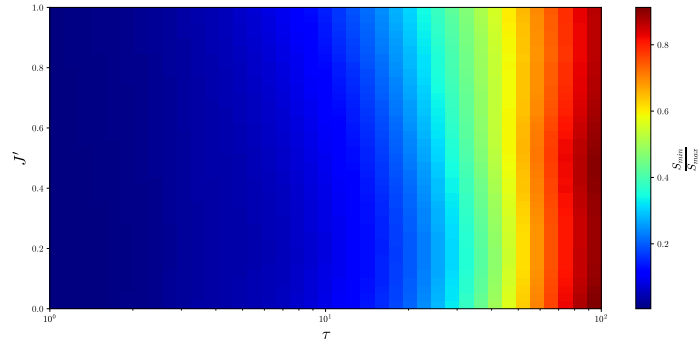


Figure 62: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

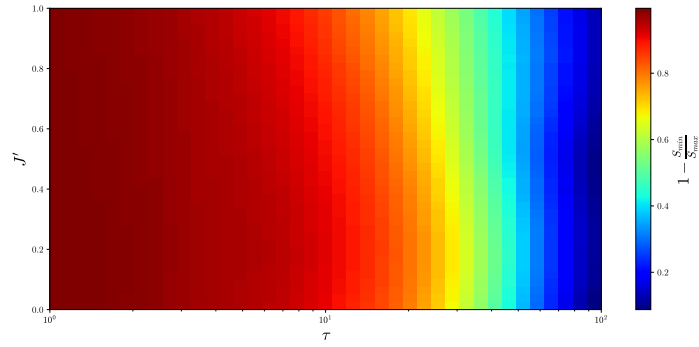


Figure 63: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

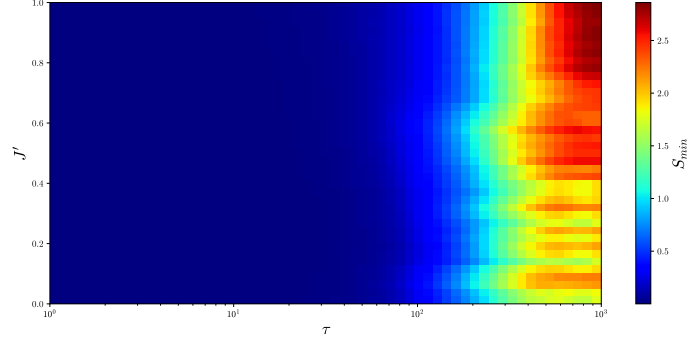


Figure 64: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

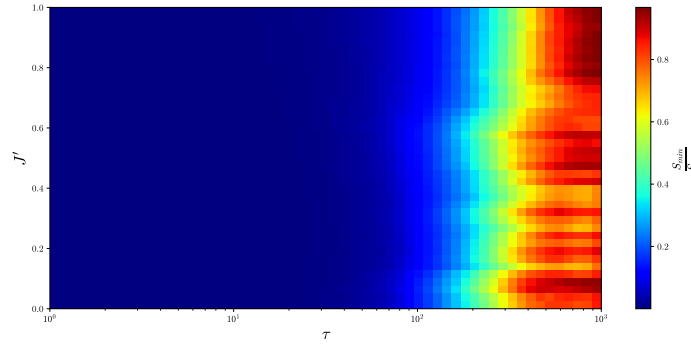


Figure 65: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

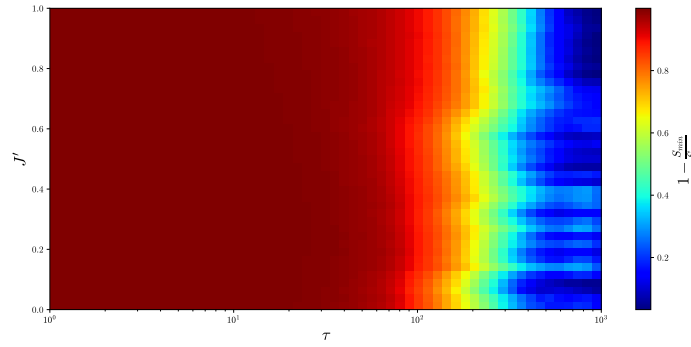


Figure 66: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

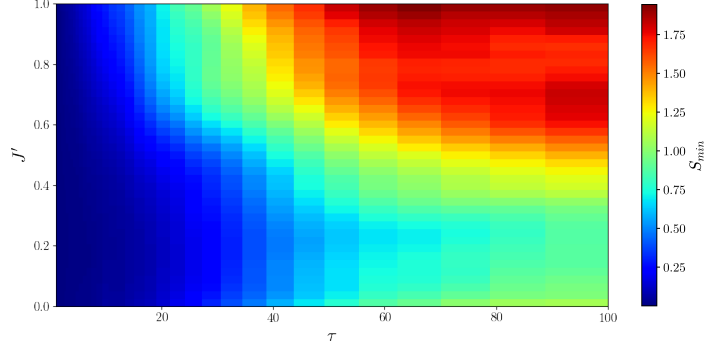


Figure 67: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

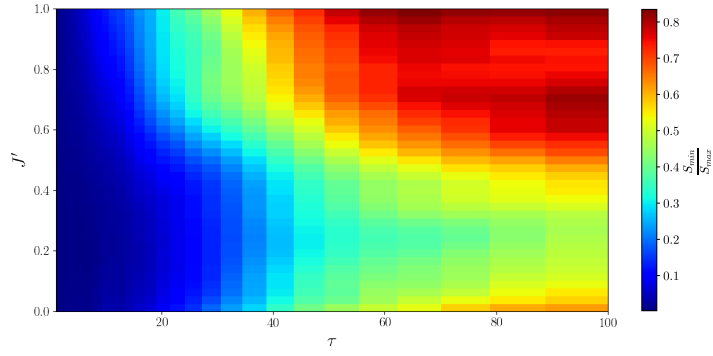


Figure 68: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

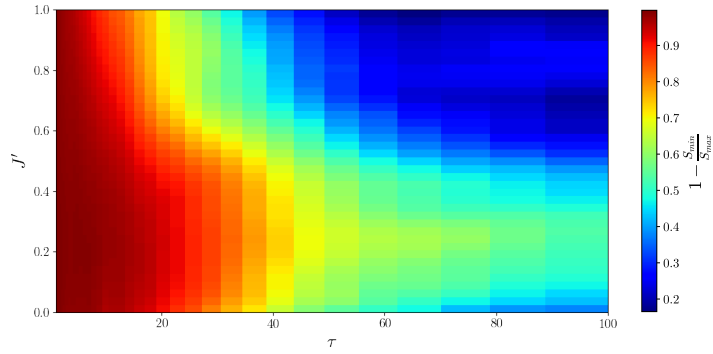


Figure 69: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

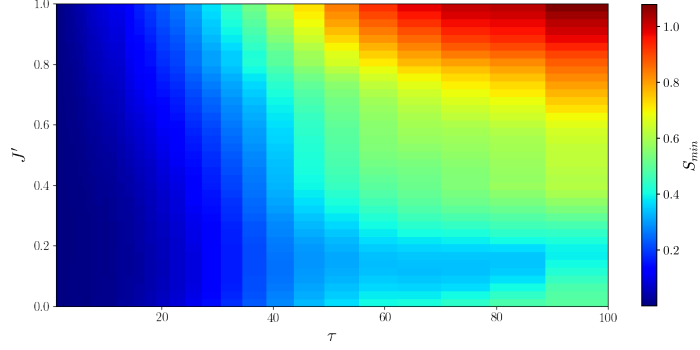


Figure 70: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

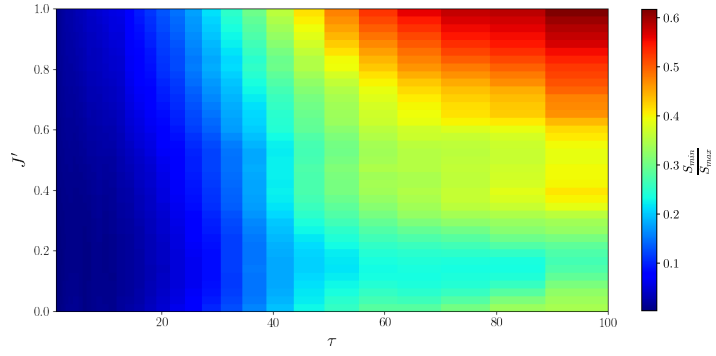


Figure 71: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

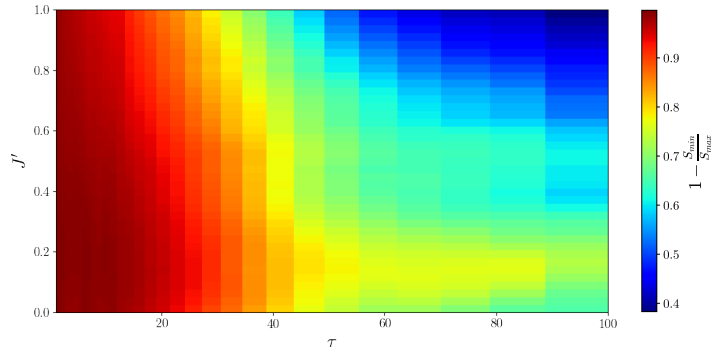


Figure 72: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

2.6 τ at $(1 - \frac{S_{min}}{S_{max}})/2$ vs J'

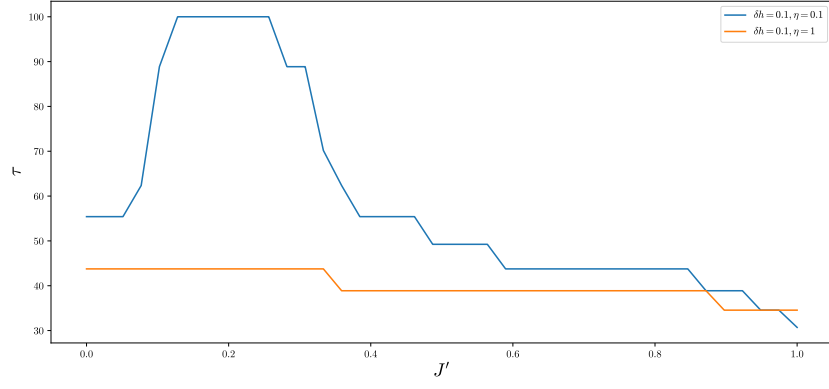


Figure 73: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder over 100 realizations, PBC.

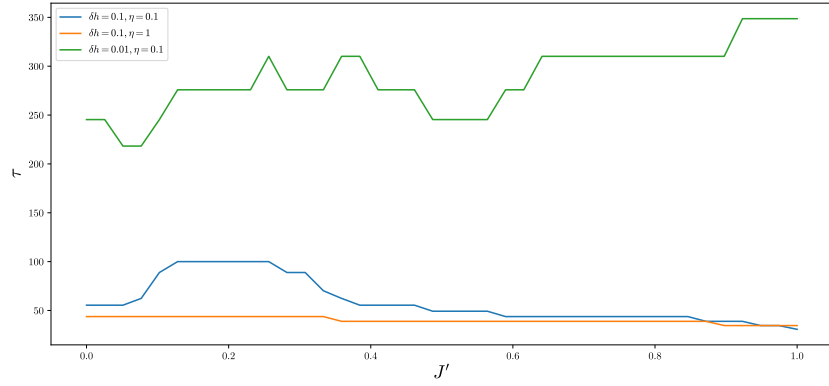


Figure 74: $N = 10, J = 1, h = 1$ with disorder over 100 realizations, PBC.

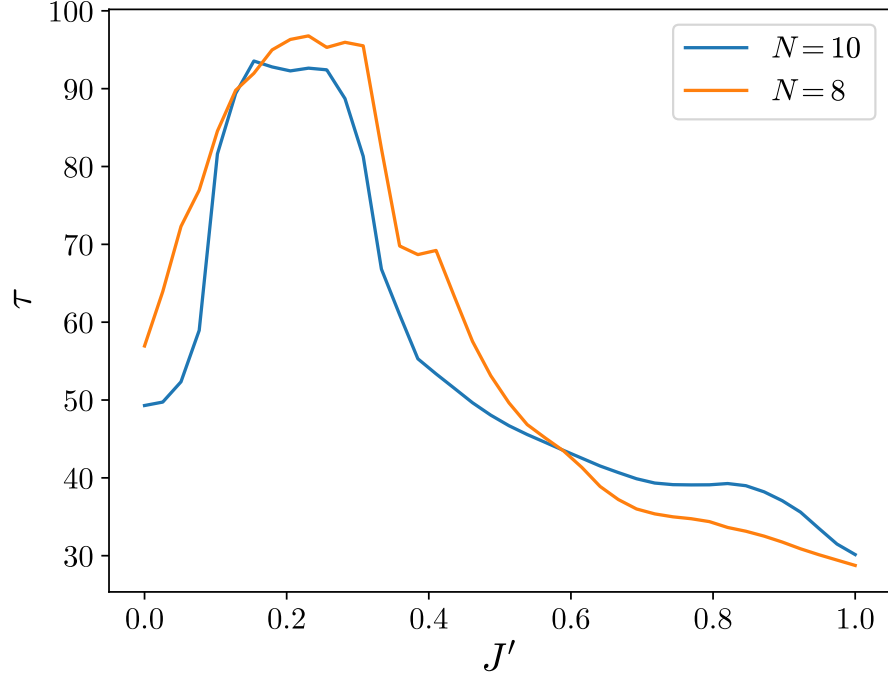


Figure 75: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

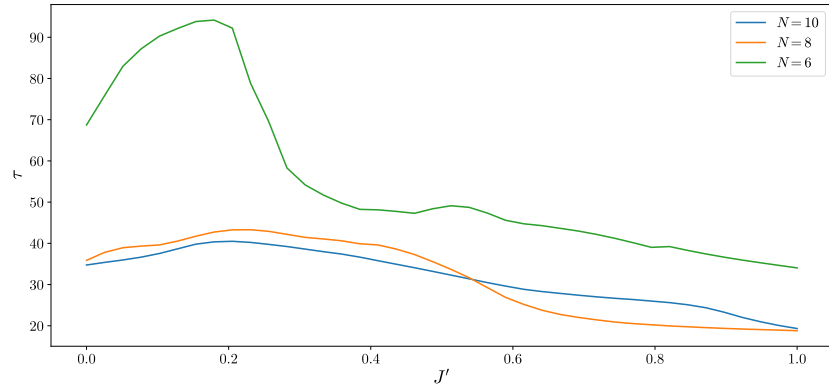


Figure 76: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC. 0.7 times the initial value

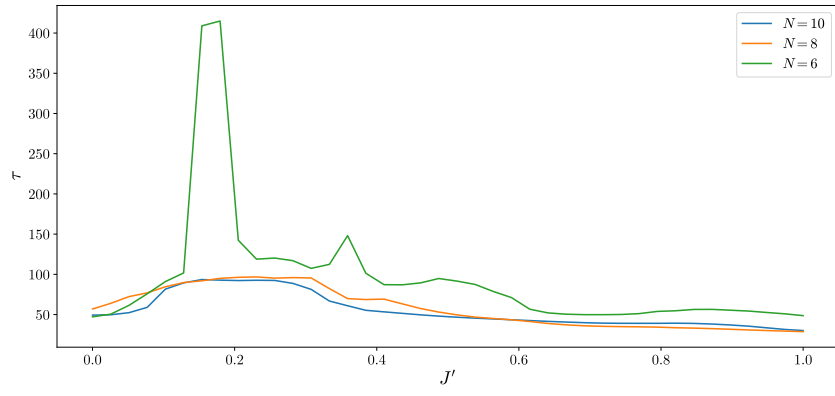


Figure 77: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

2.7 S_{min} vs τ vs J' averaged over intial eigenstates

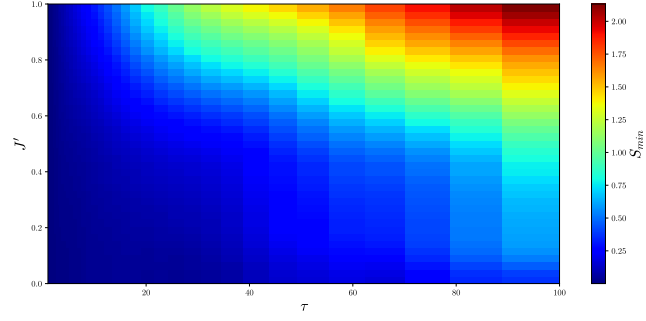


Figure 78: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

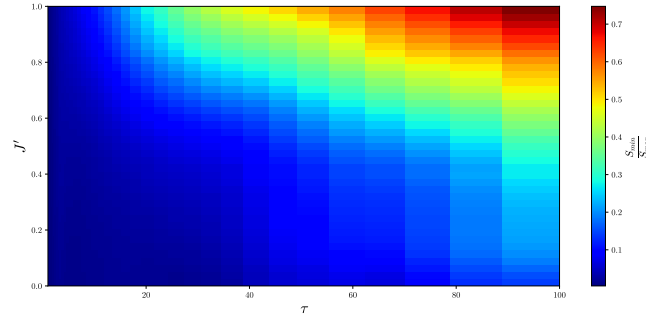


Figure 79: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

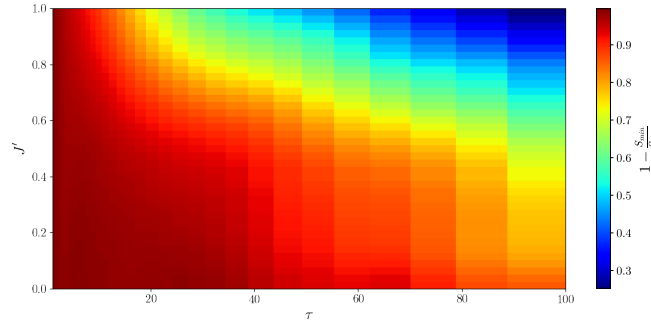


Figure 80: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

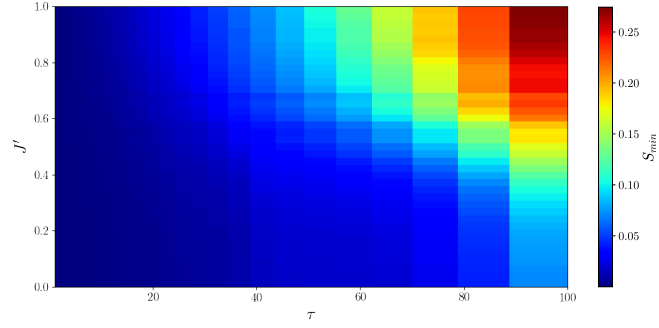


Figure 81: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

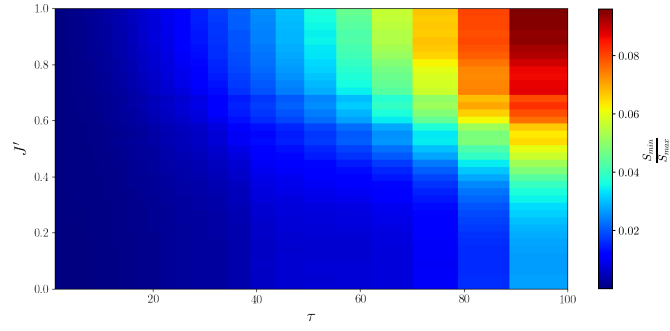


Figure 82: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

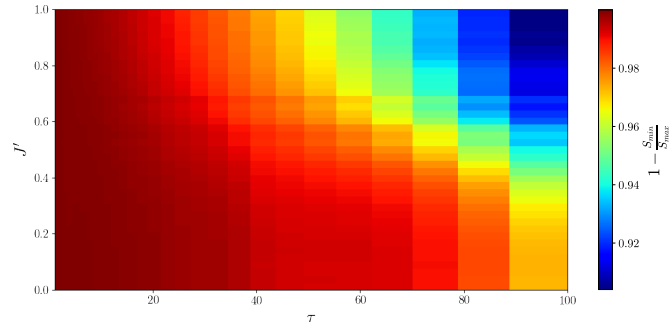


Figure 83: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

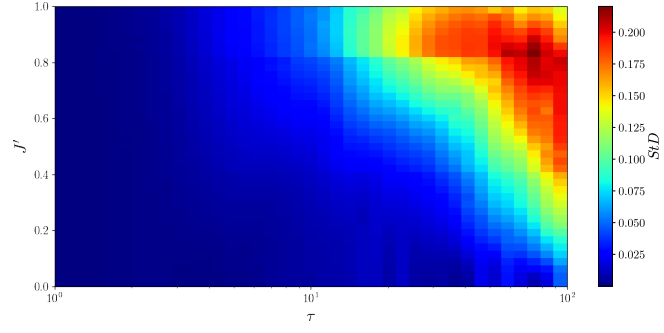


Figure 84: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

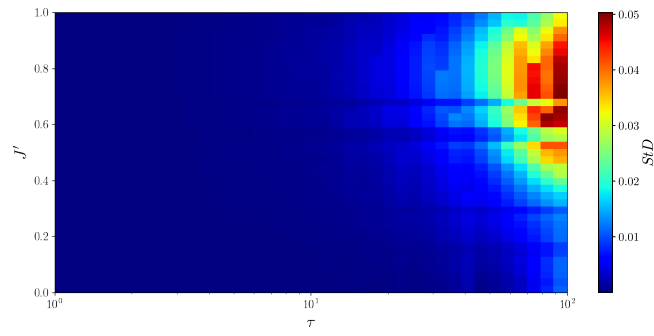


Figure 85: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

2.8 Standard deviation vs time

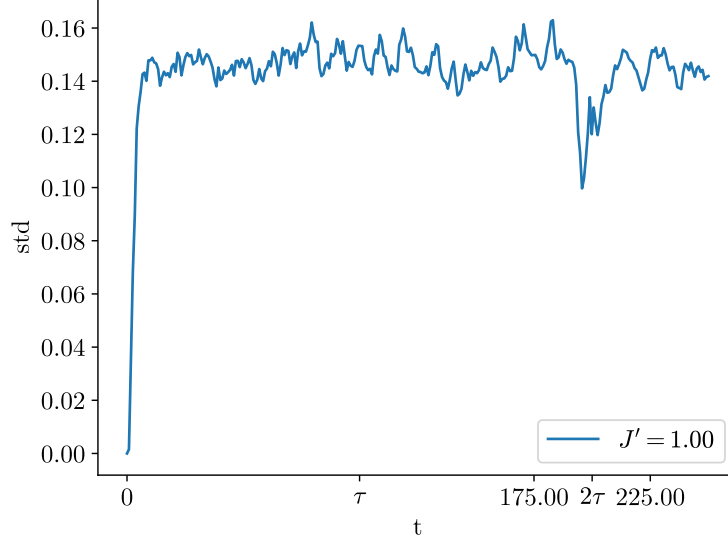


Figure 86: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

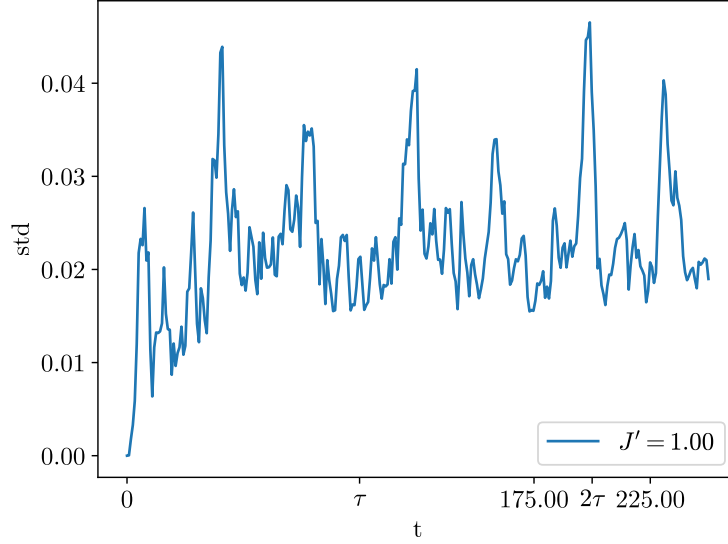


Figure 87: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 initial random state, PBC.

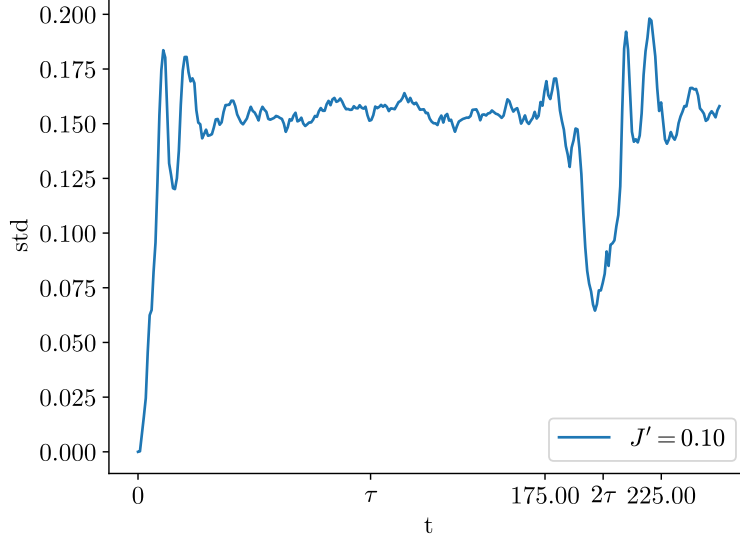


Figure 88: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

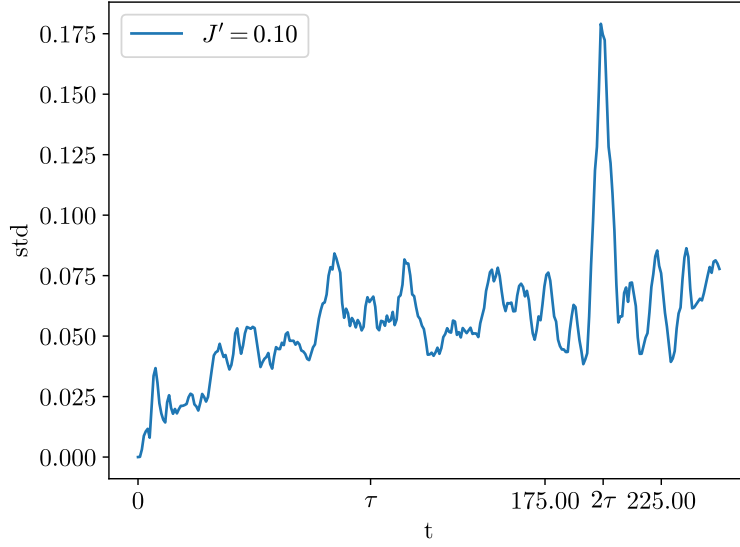


Figure 89: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 initial random state, PBC.

2.9 Mean and Standard deviation of mean around 2τ vs t

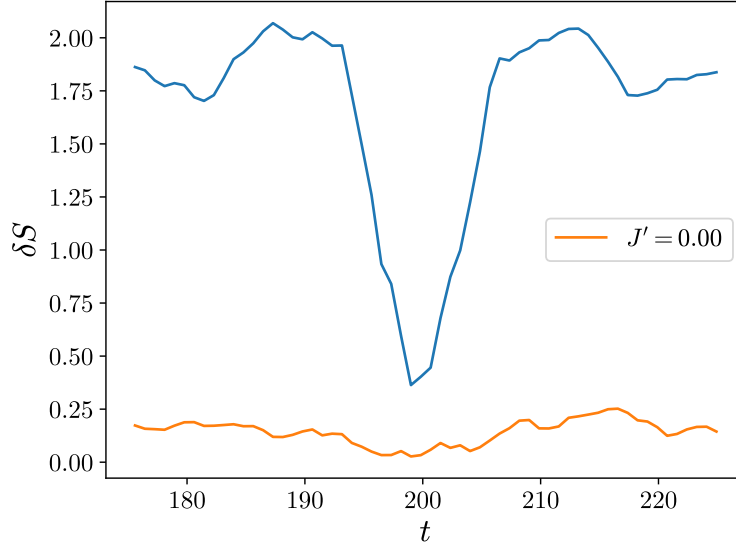


Figure 90: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

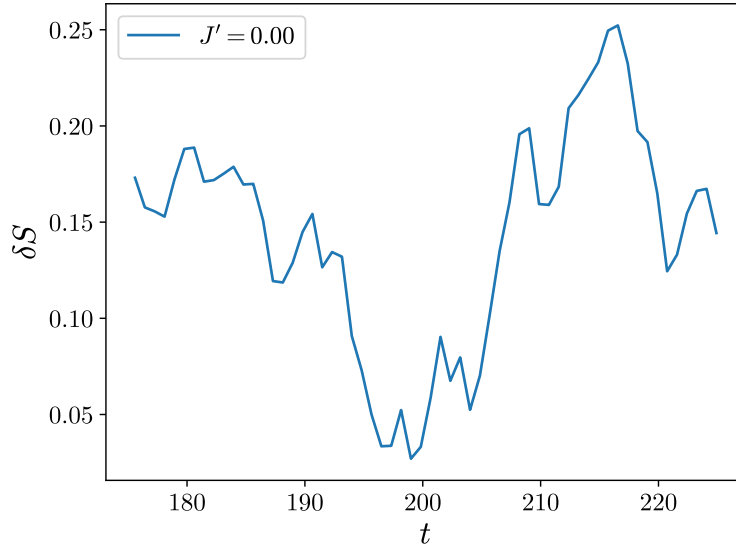


Figure 91: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

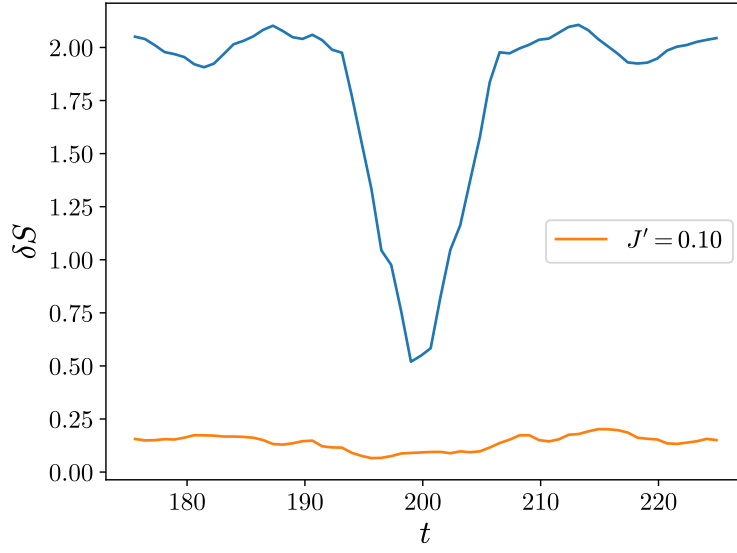


Figure 92: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

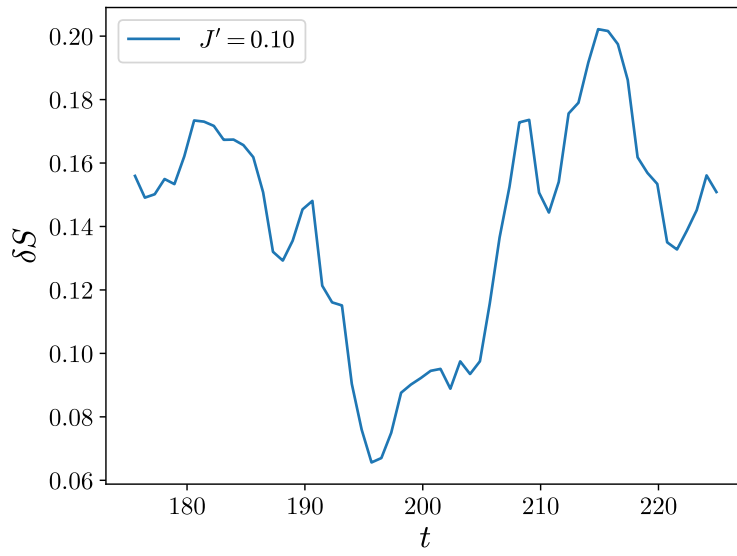


Figure 93: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

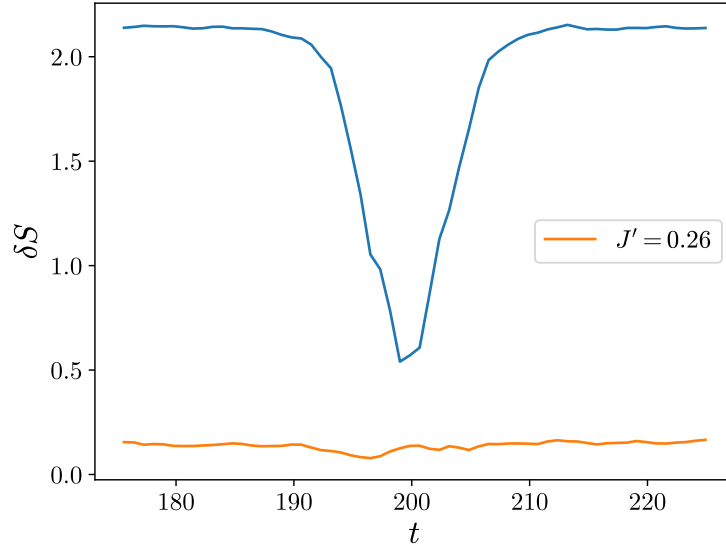


Figure 94: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

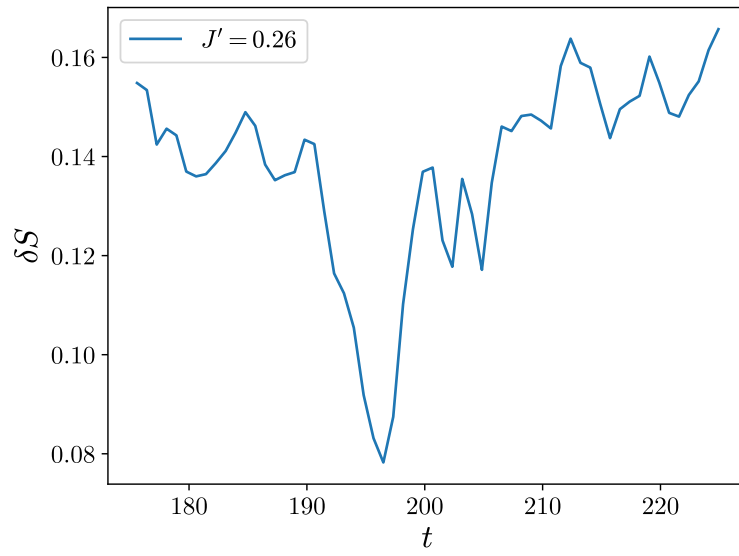


Figure 95: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

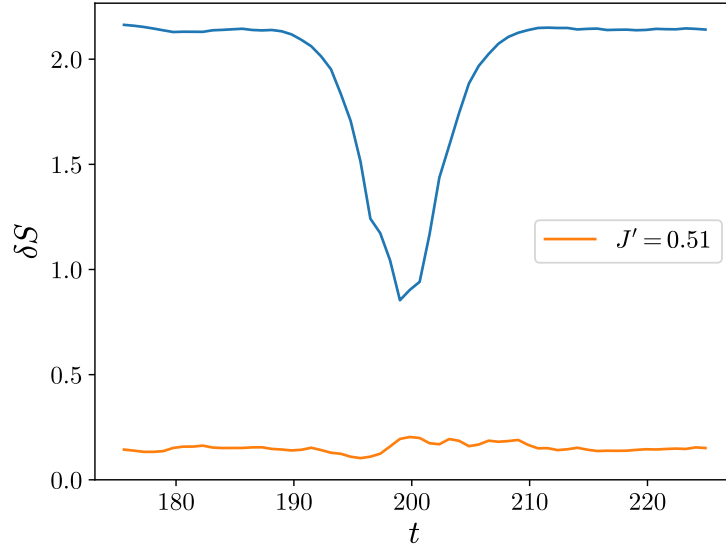


Figure 96: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

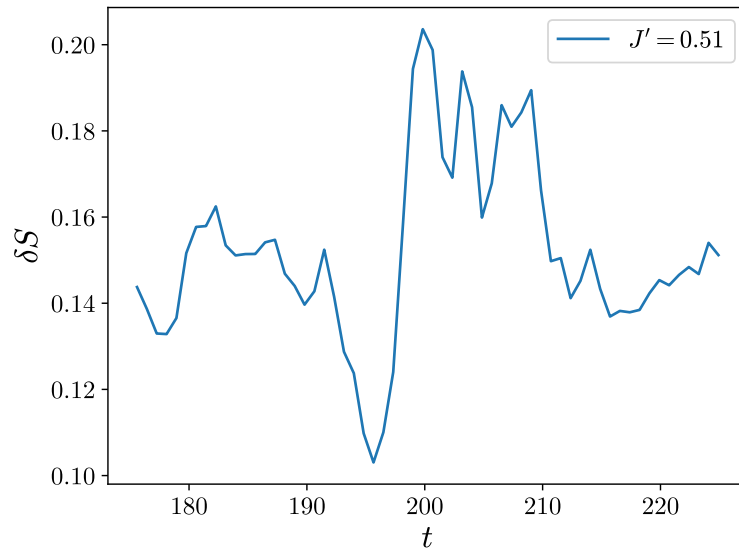


Figure 97: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

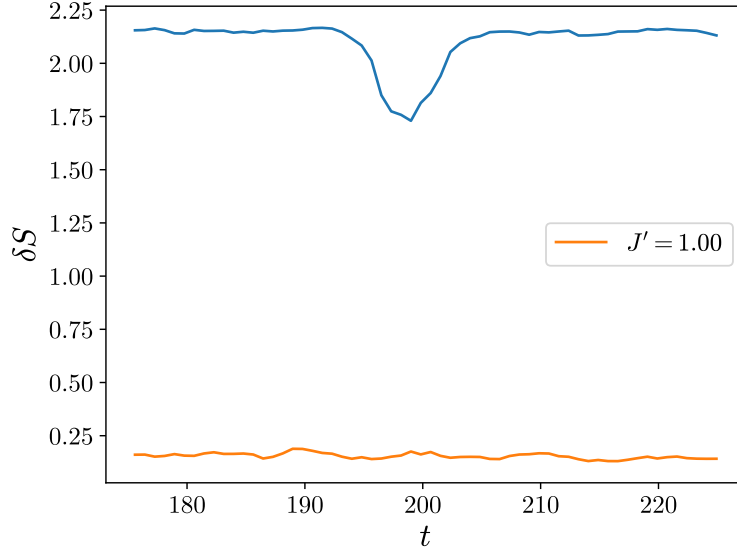


Figure 98: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

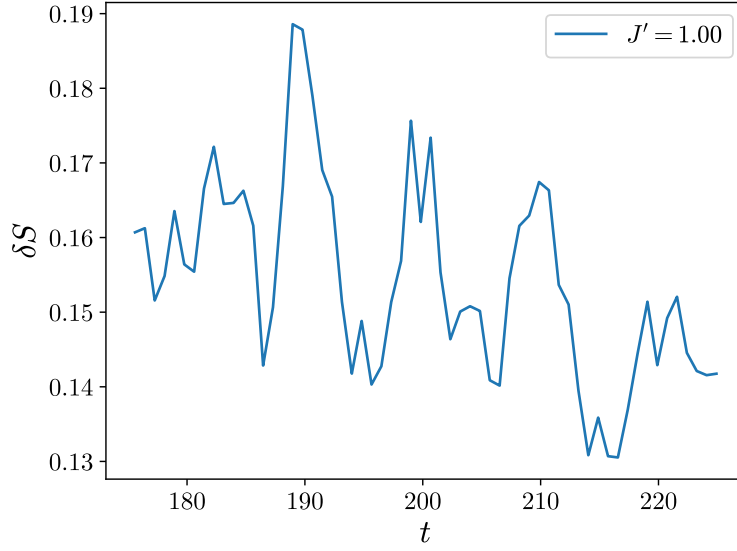


Figure 99: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

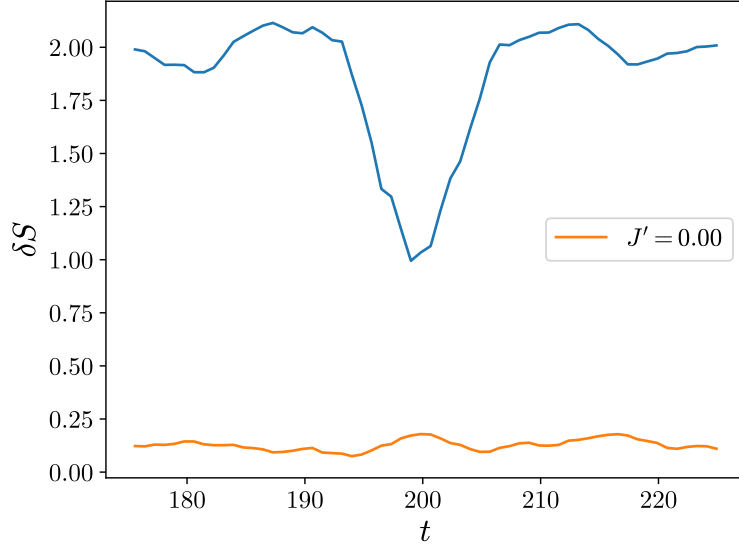


Figure 100: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

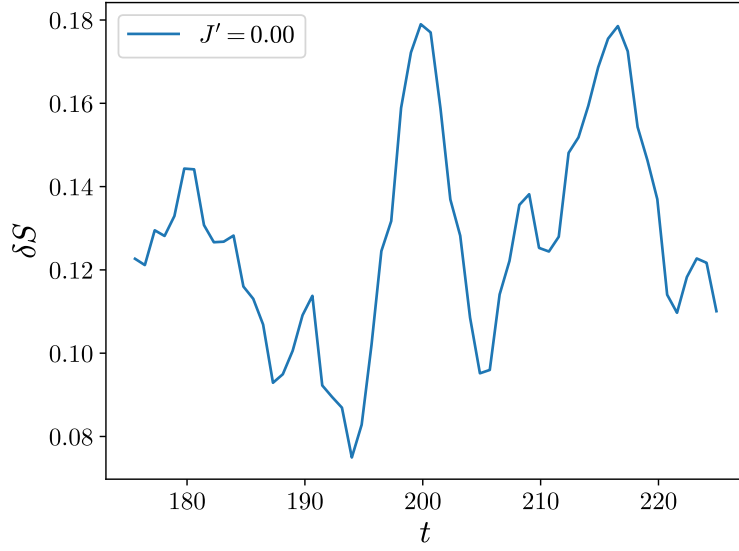


Figure 101: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

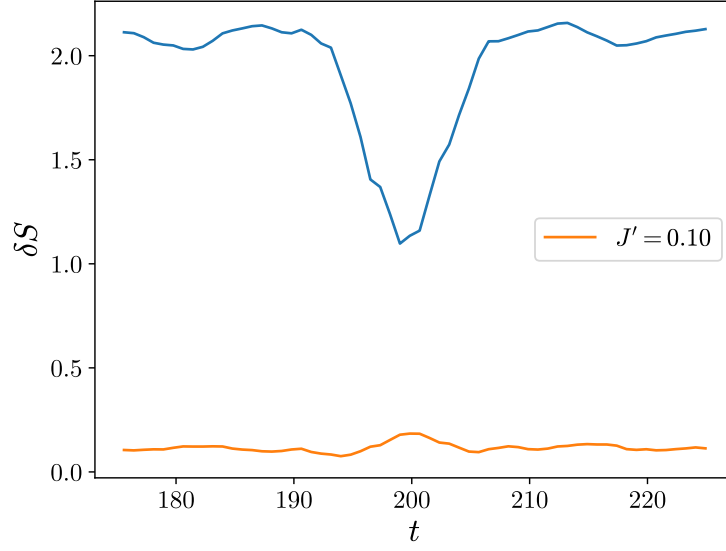


Figure 102: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

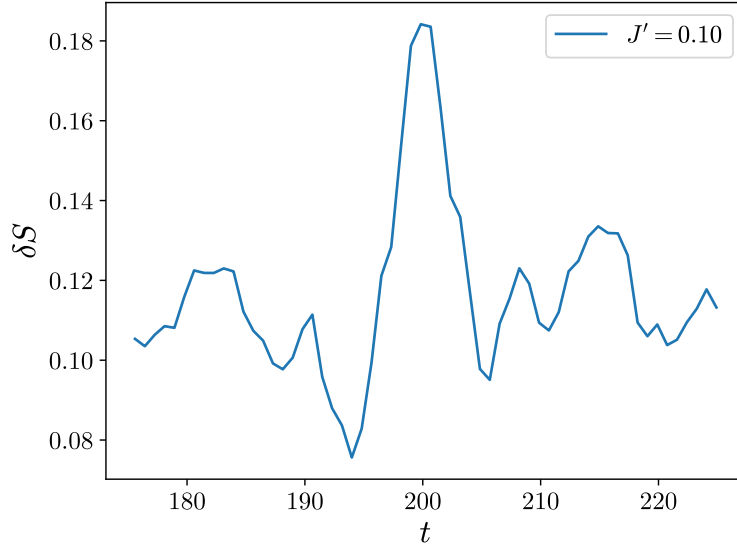


Figure 103: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

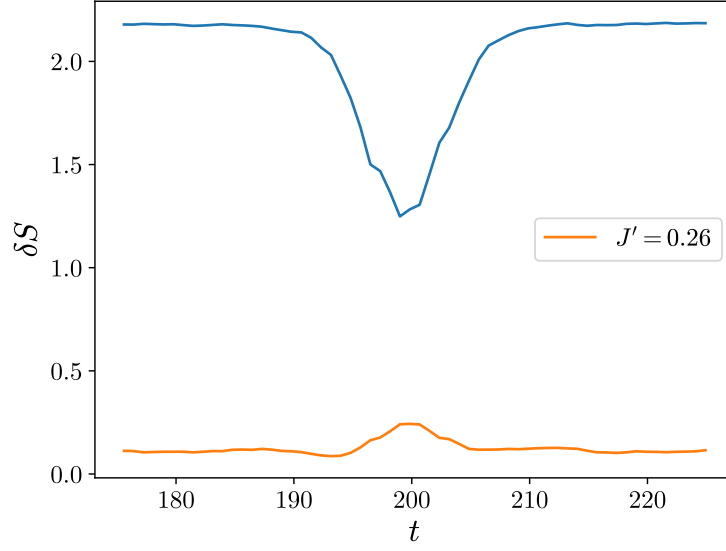


Figure 104: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

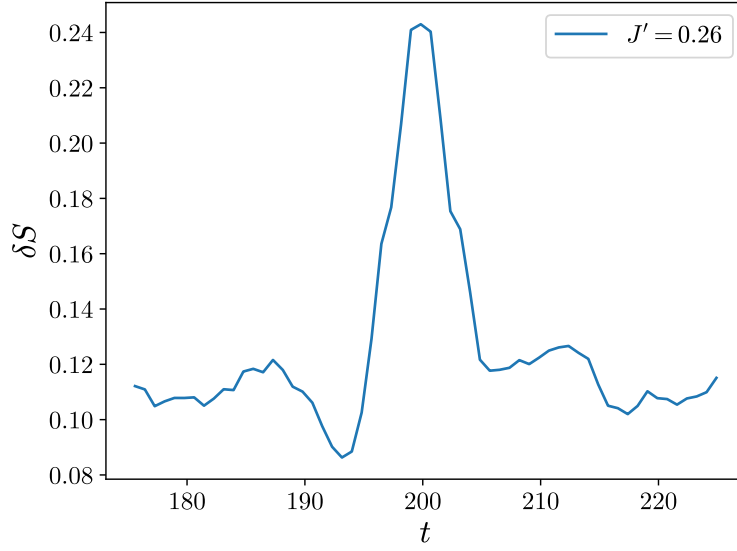


Figure 105: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

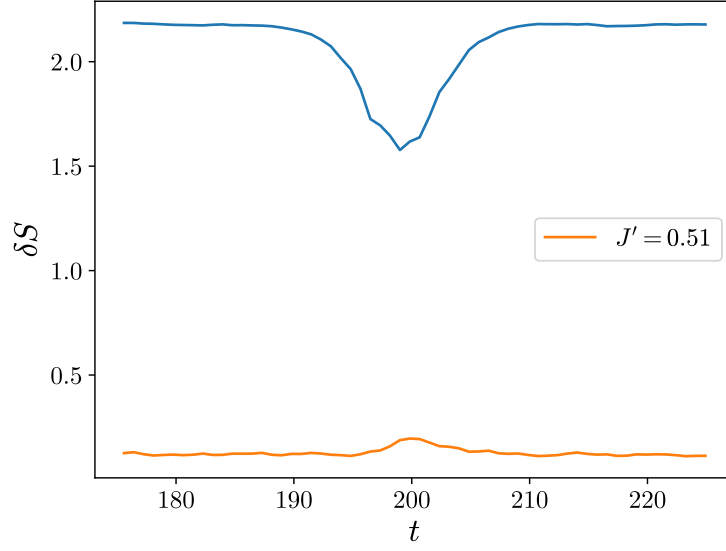


Figure 106: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

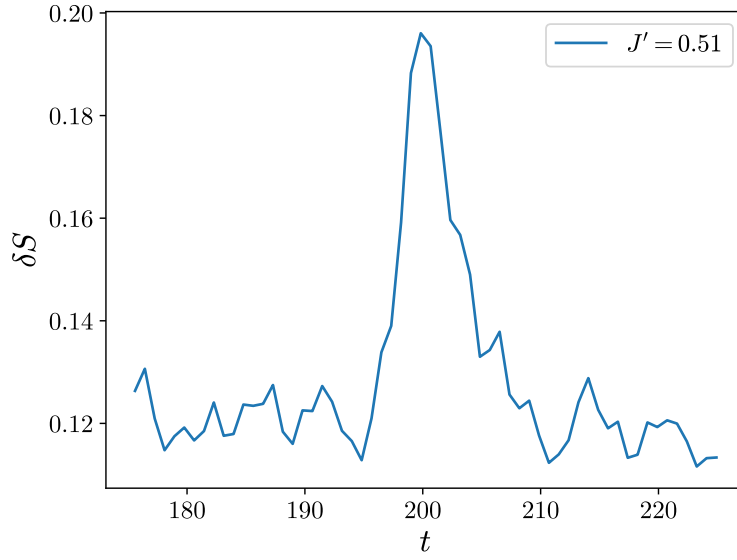


Figure 107: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

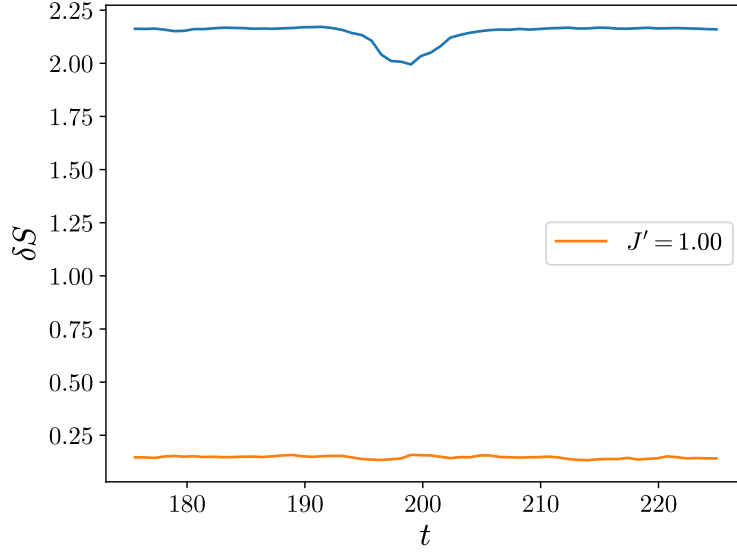


Figure 108: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

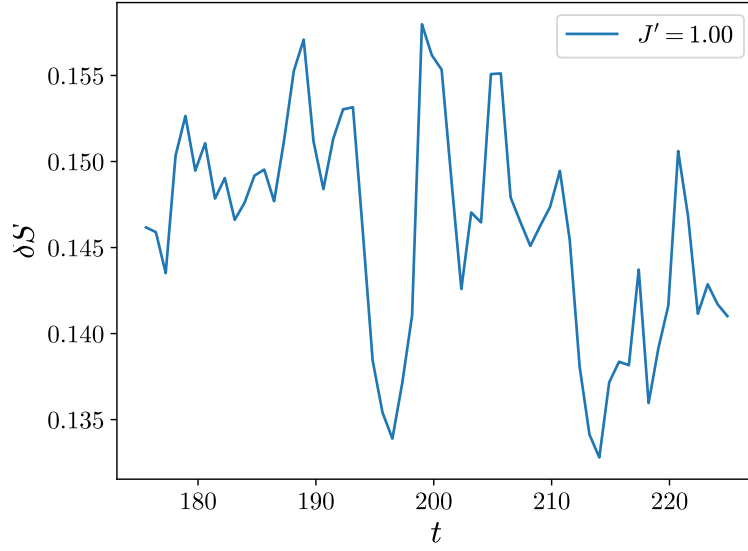


Figure 109: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.10 Standard deviation of mean at 2τ vs τ

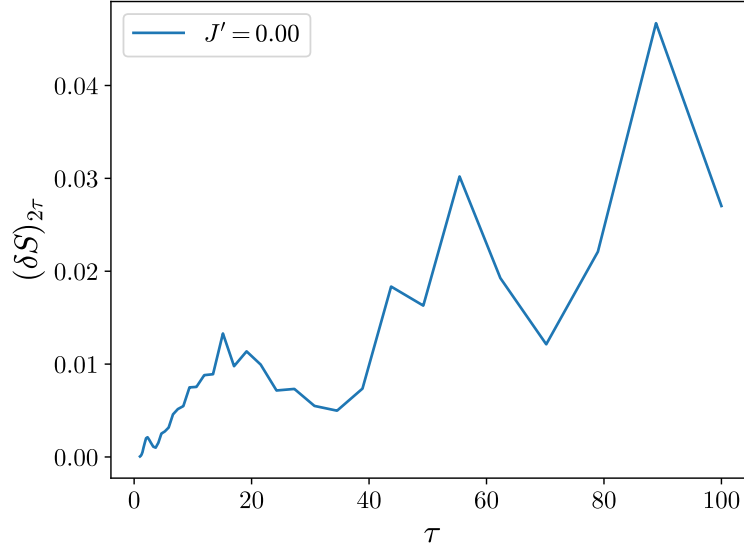


Figure 110: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

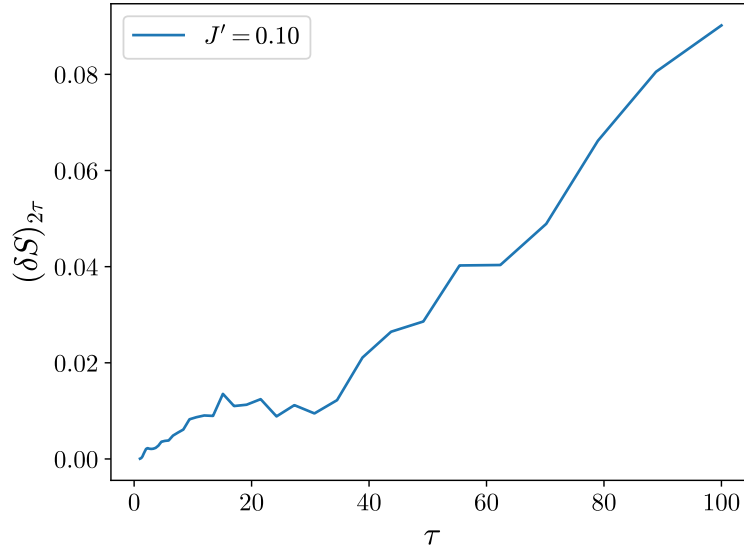


Figure 111: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

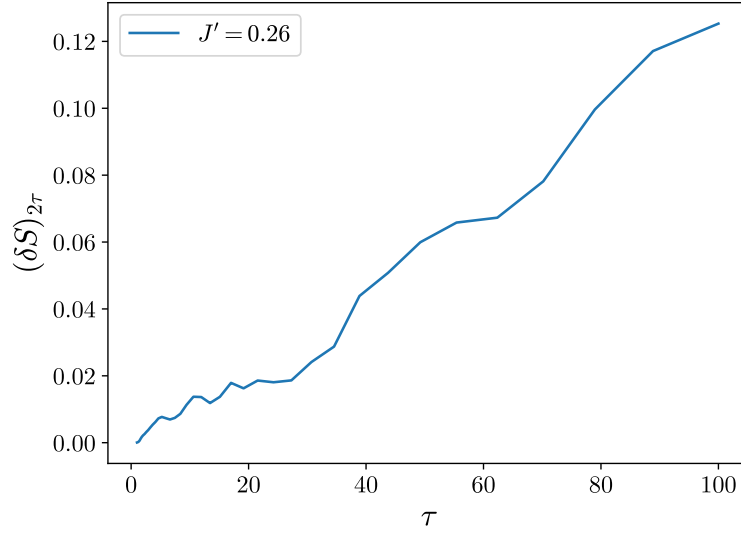


Figure 112: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

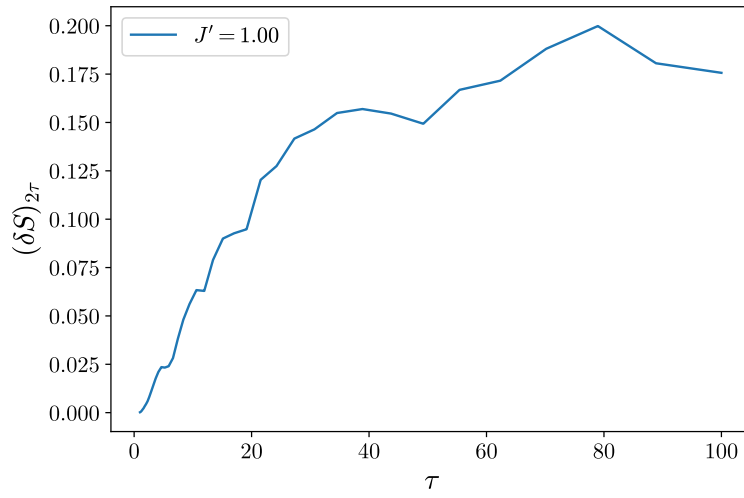


Figure 113: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

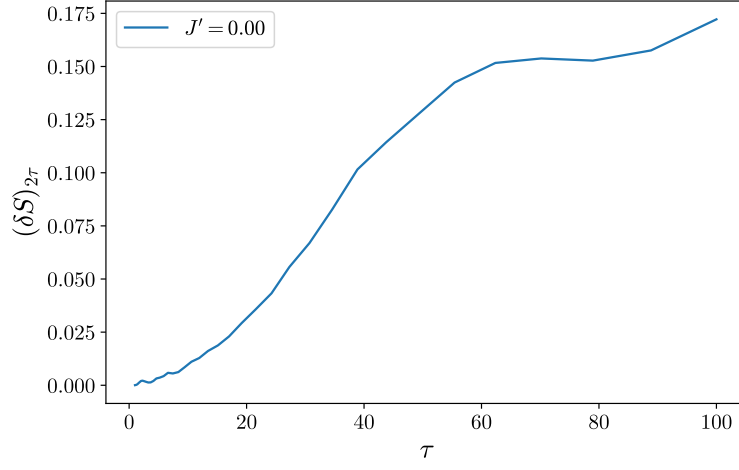


Figure 114: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

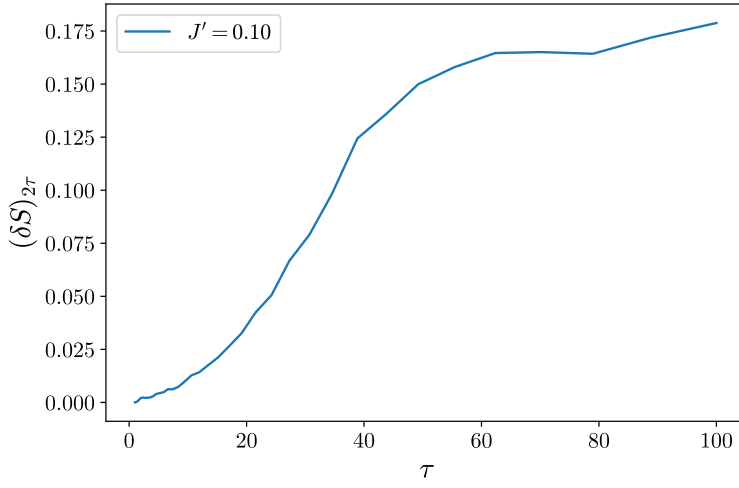


Figure 115: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

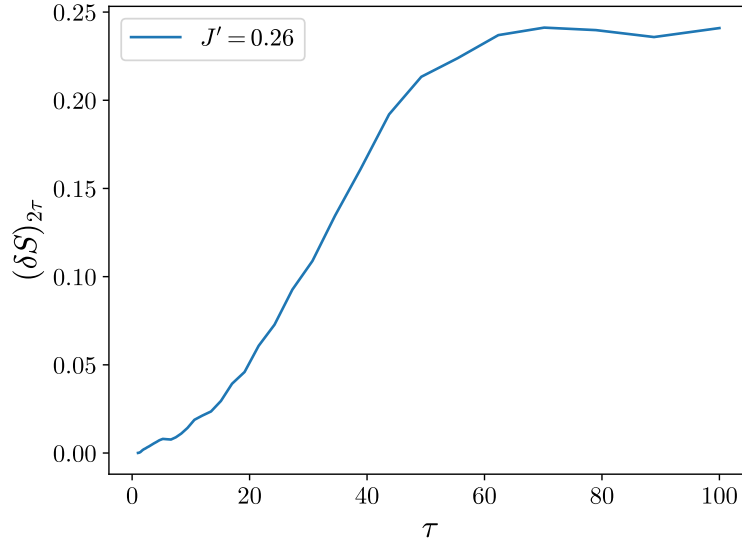


Figure 116: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

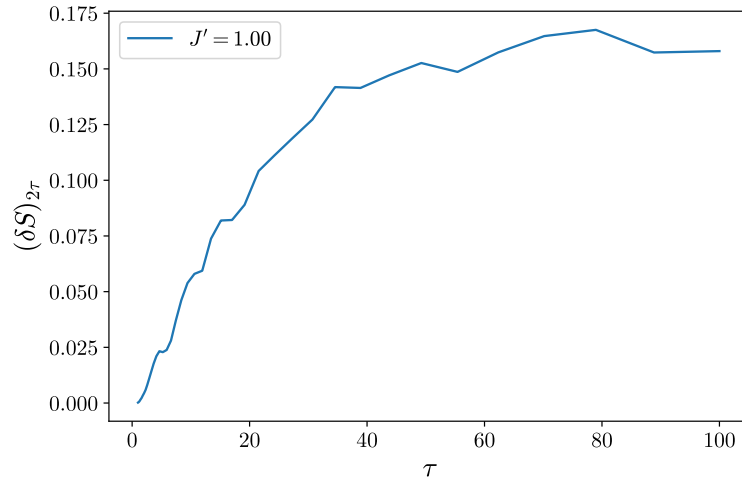


Figure 117: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11 Energy resolved analysis

2.11.1 Initial energy vs δE

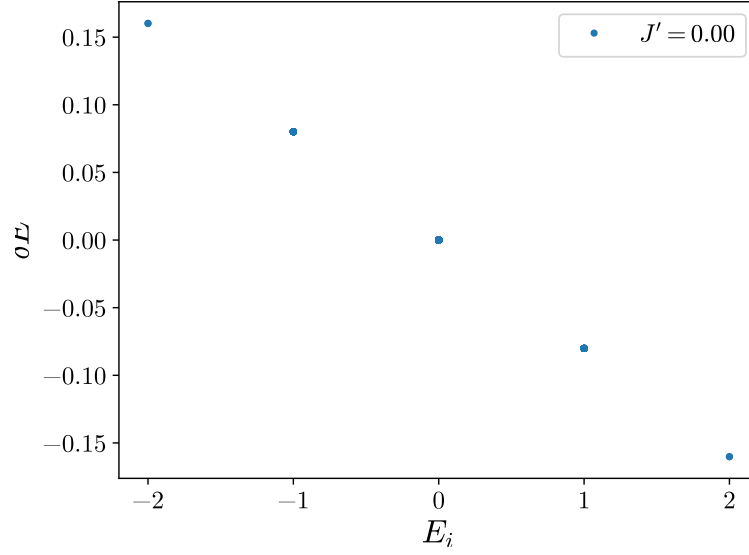


Figure 118: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

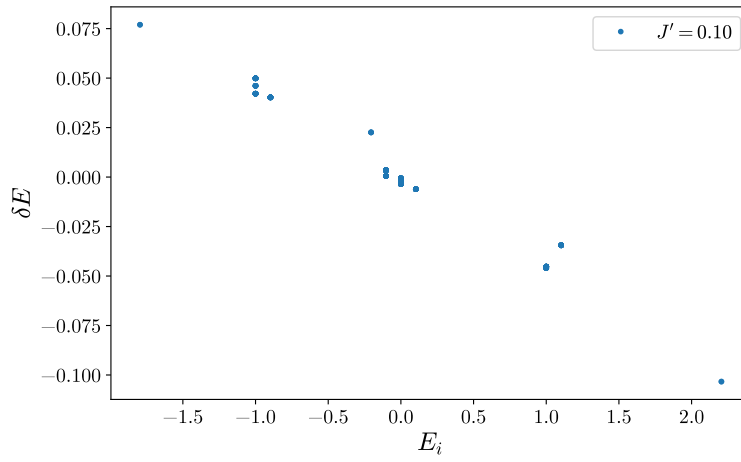


Figure 119: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

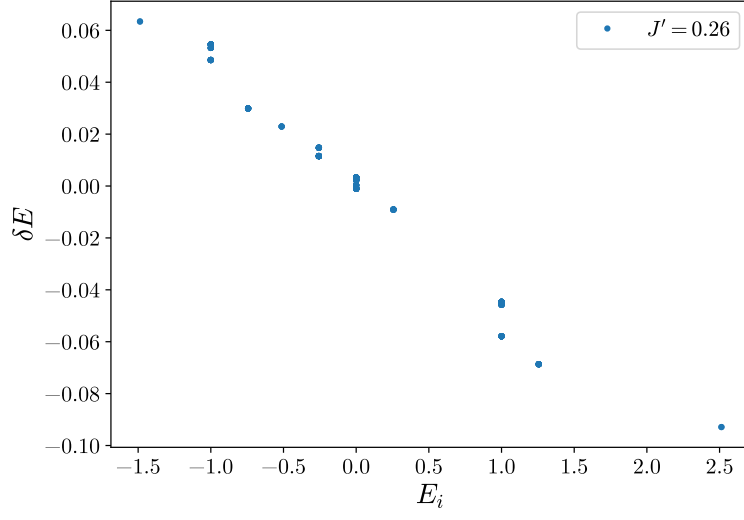


Figure 120: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

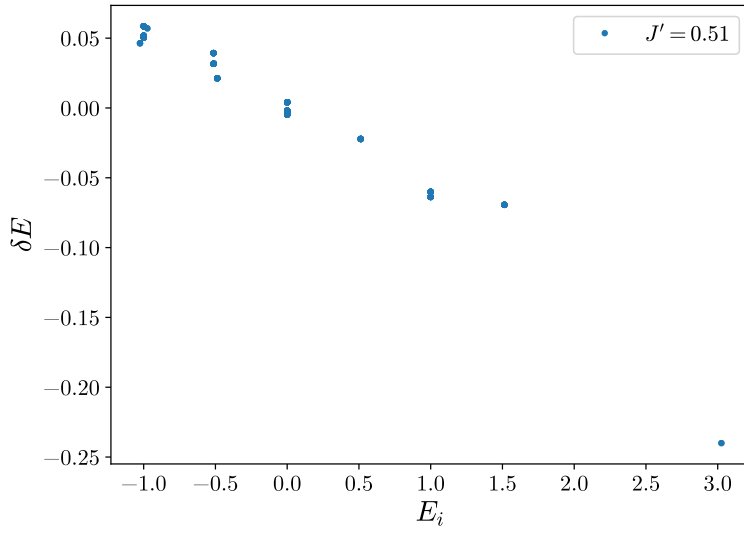


Figure 121: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

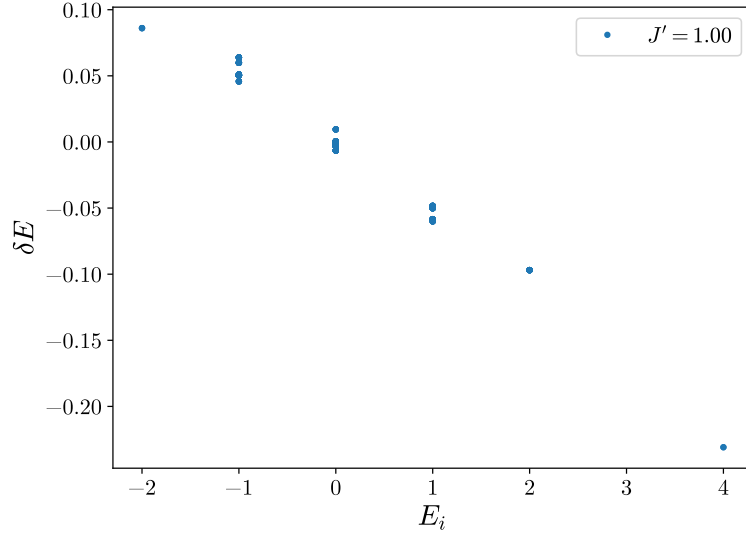


Figure 122: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

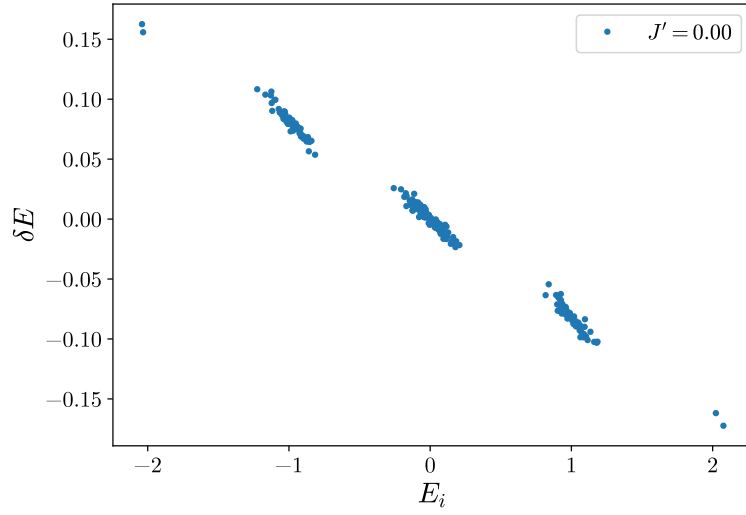


Figure 123: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

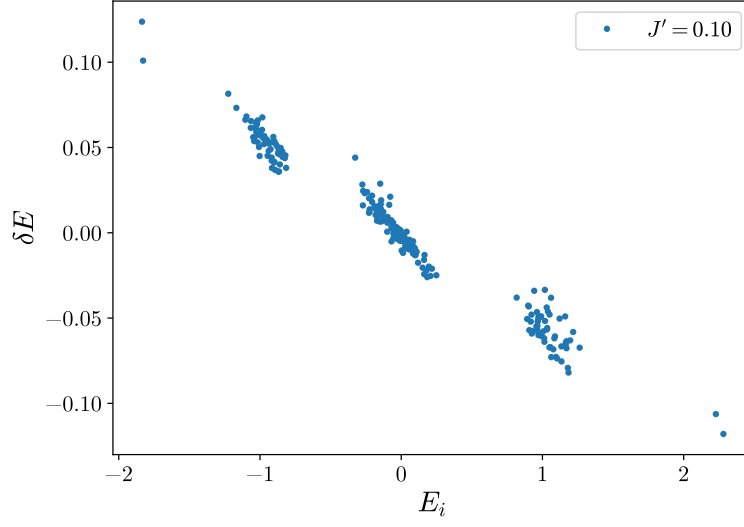


Figure 124: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

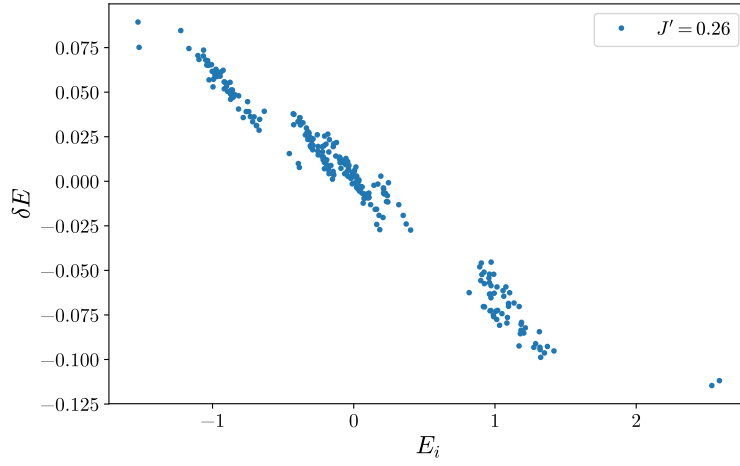


Figure 125: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

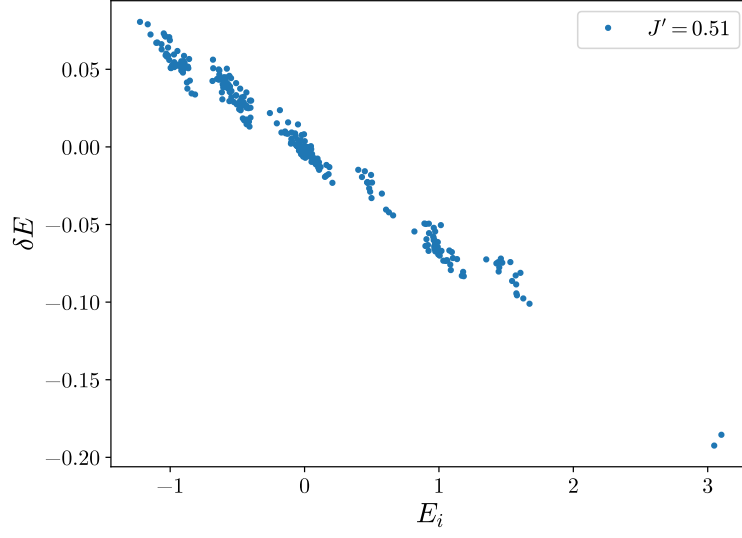


Figure 126: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

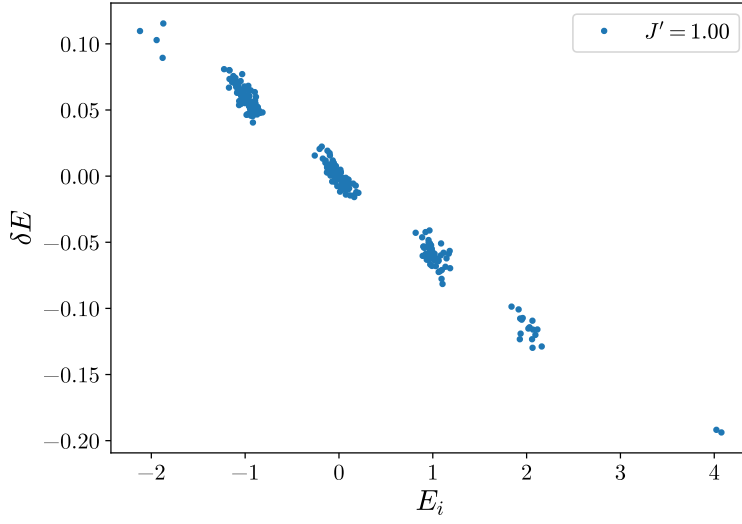


Figure 127: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11.2 Initial energy vs samples

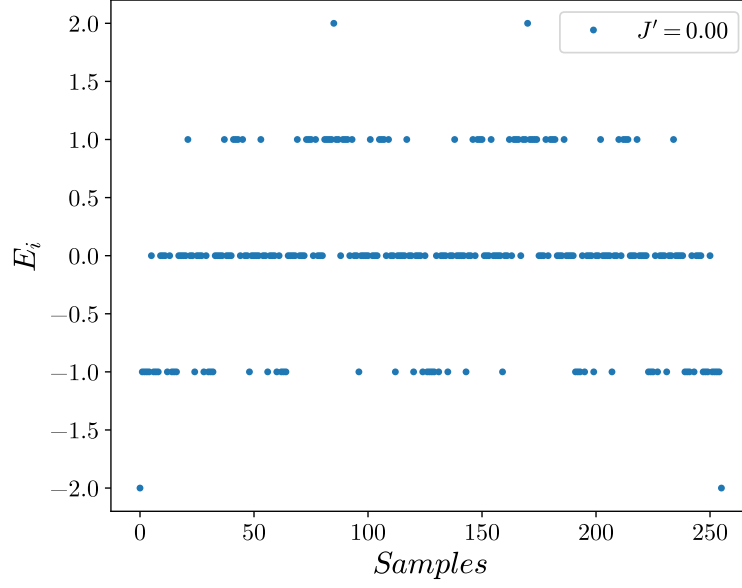


Figure 128: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

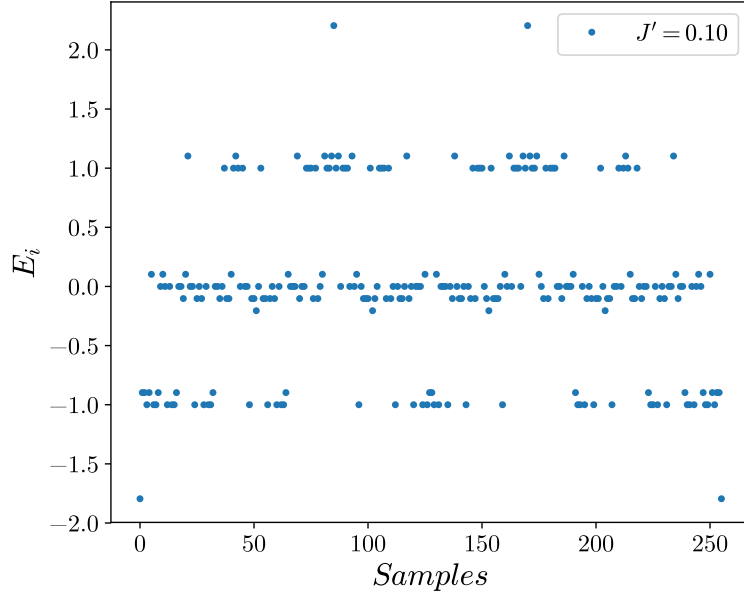


Figure 129: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

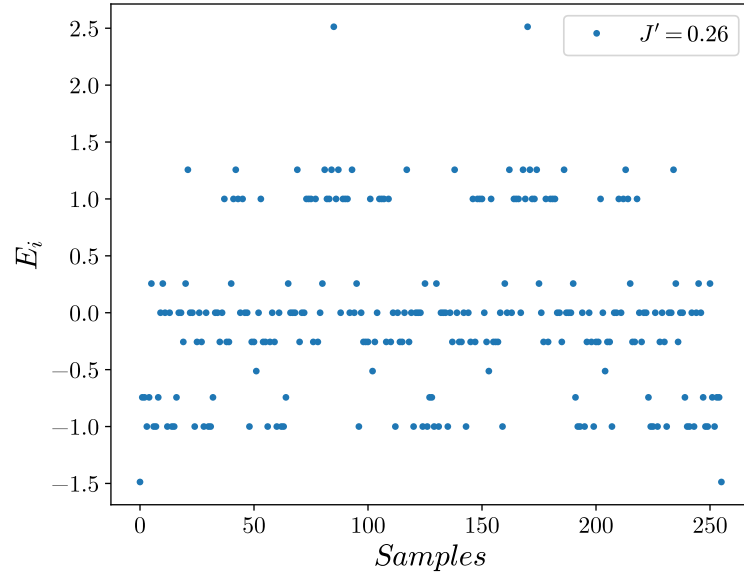


Figure 130: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

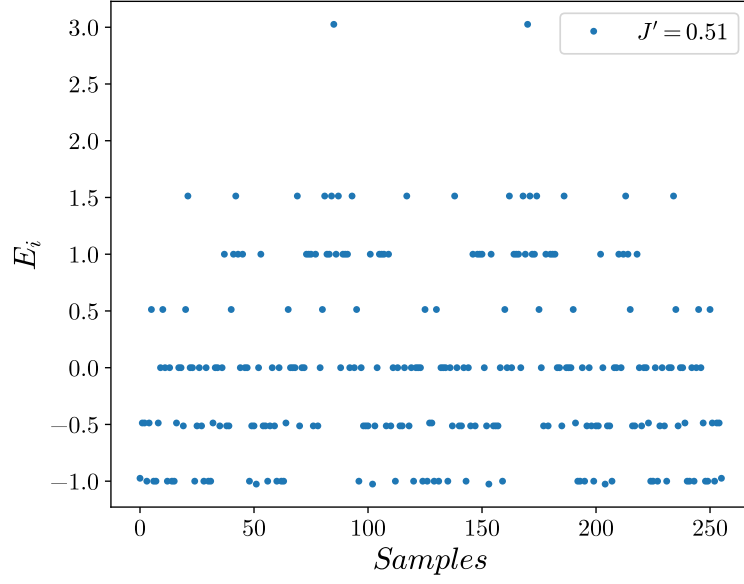


Figure 131: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

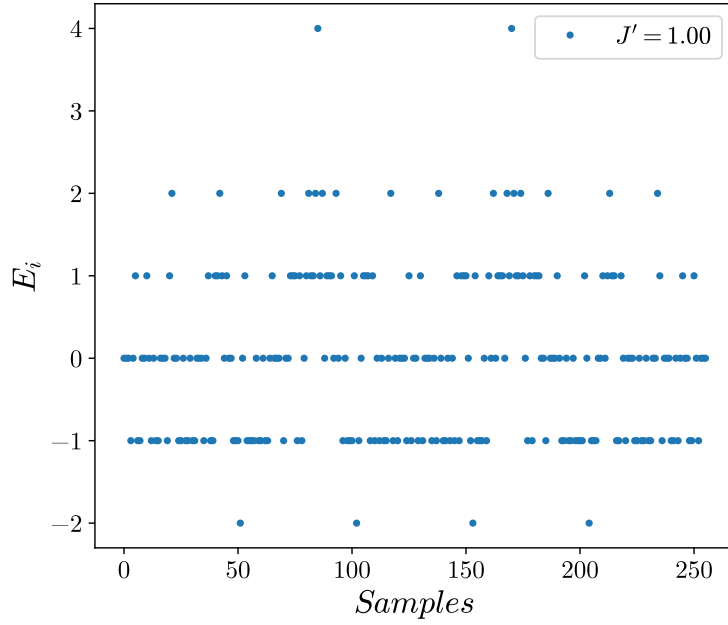


Figure 132: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

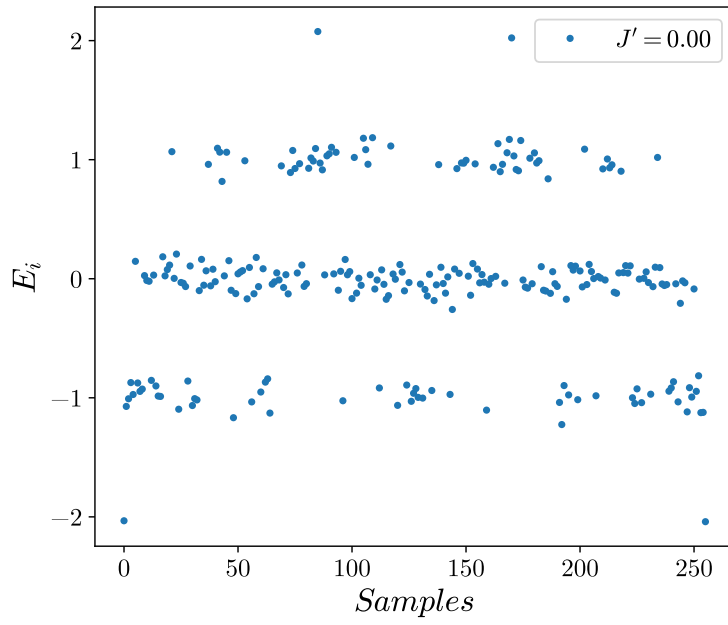


Figure 133: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

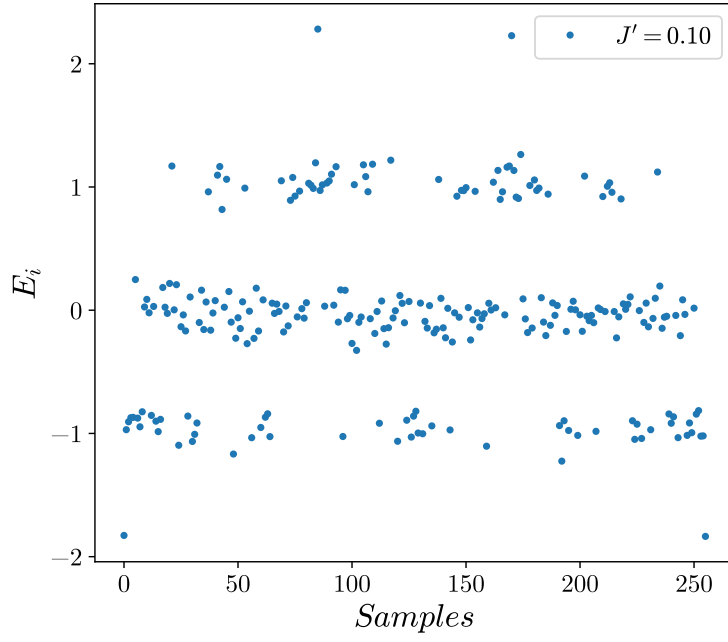


Figure 134: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

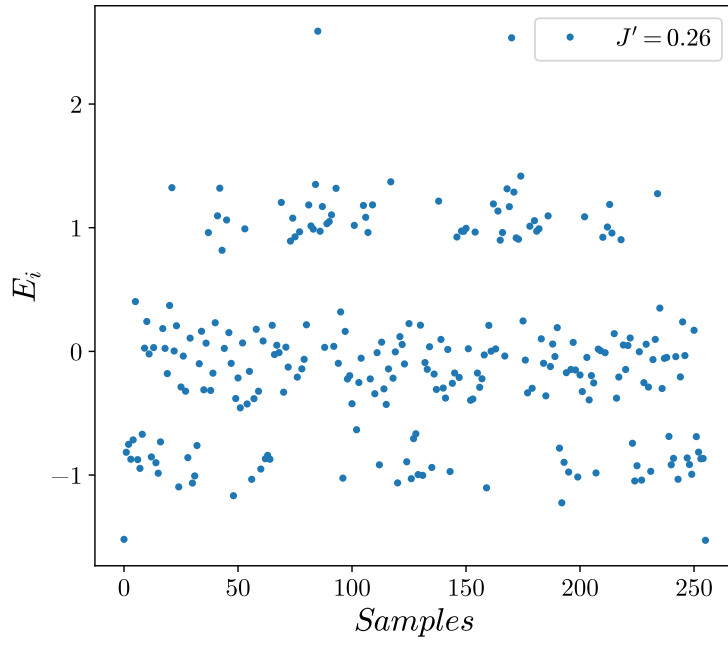


Figure 135: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

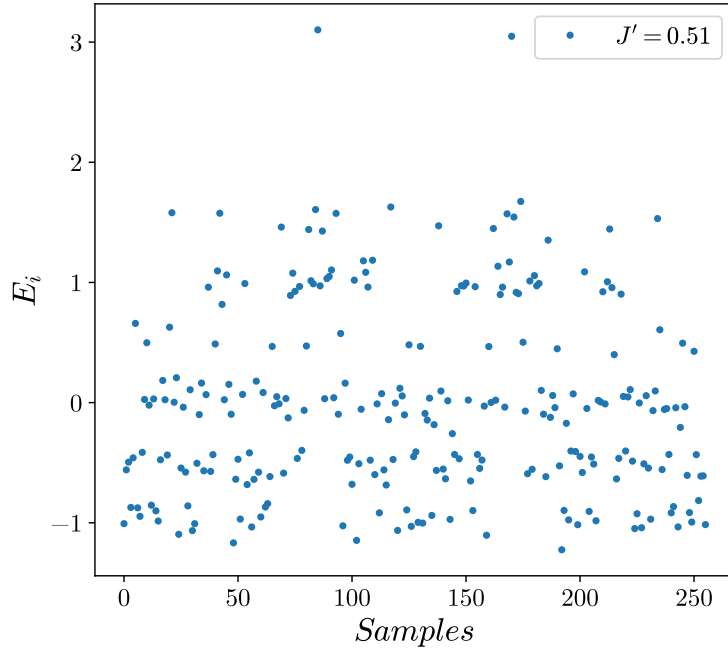


Figure 136: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

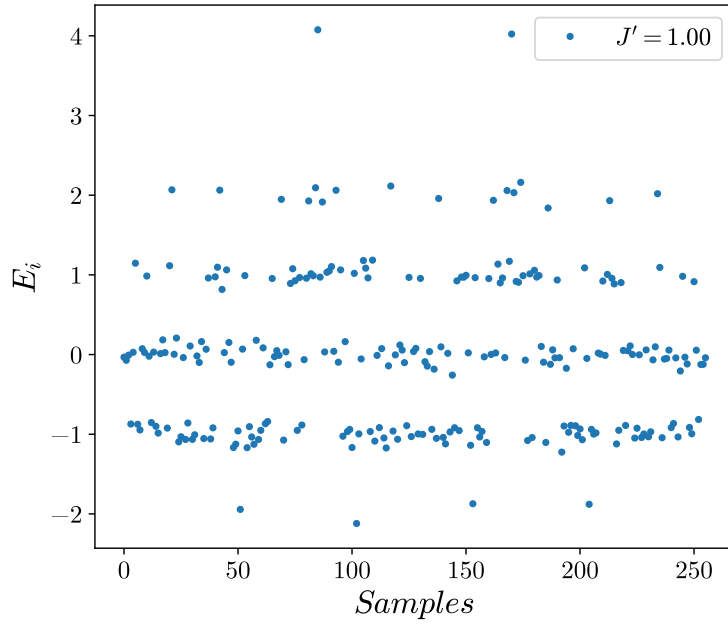


Figure 137: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11.3 S_{min} vs δE

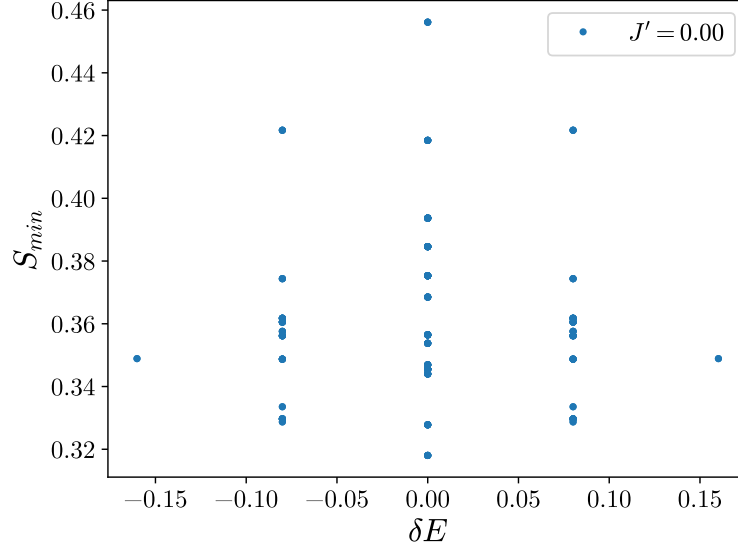


Figure 138: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

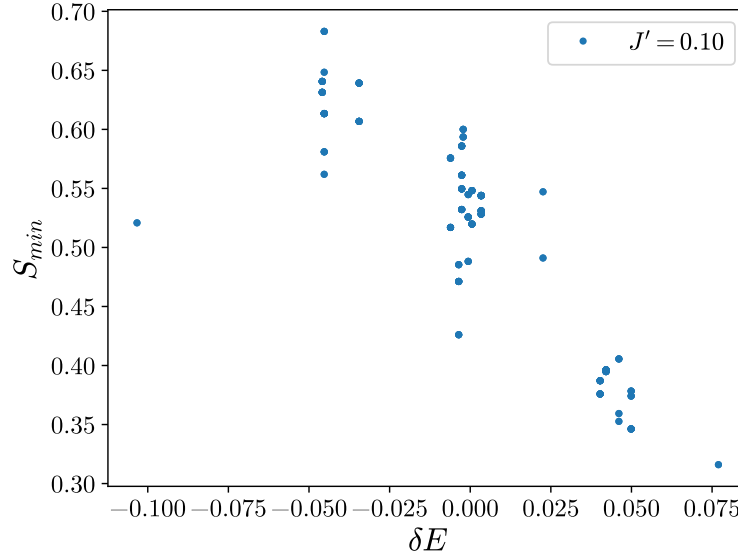


Figure 139: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

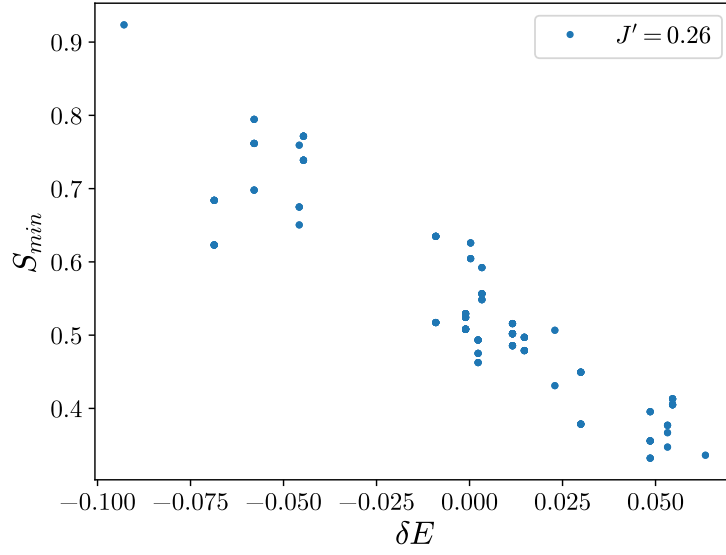


Figure 140: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

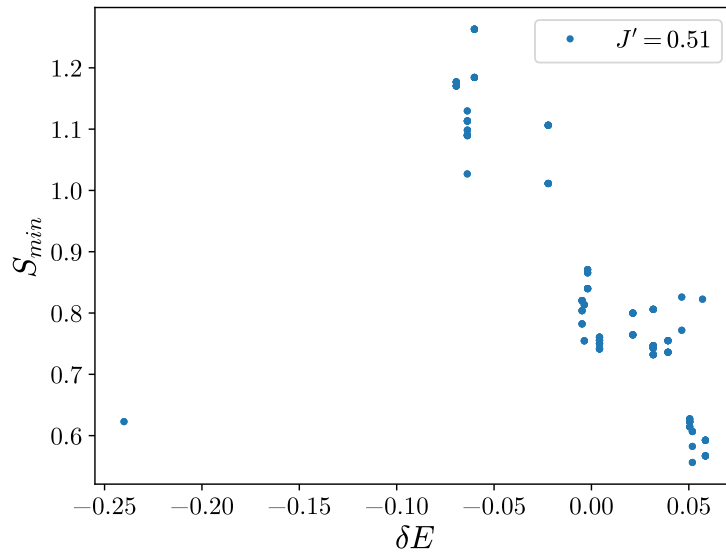


Figure 141: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

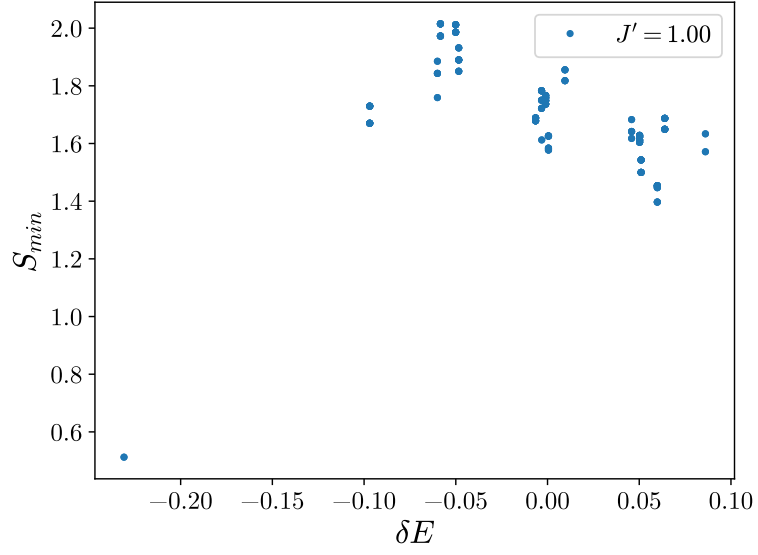


Figure 142: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

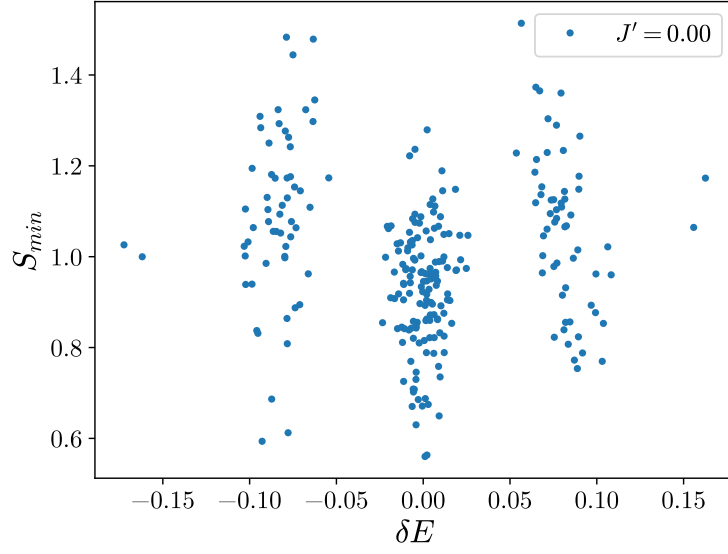


Figure 143: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

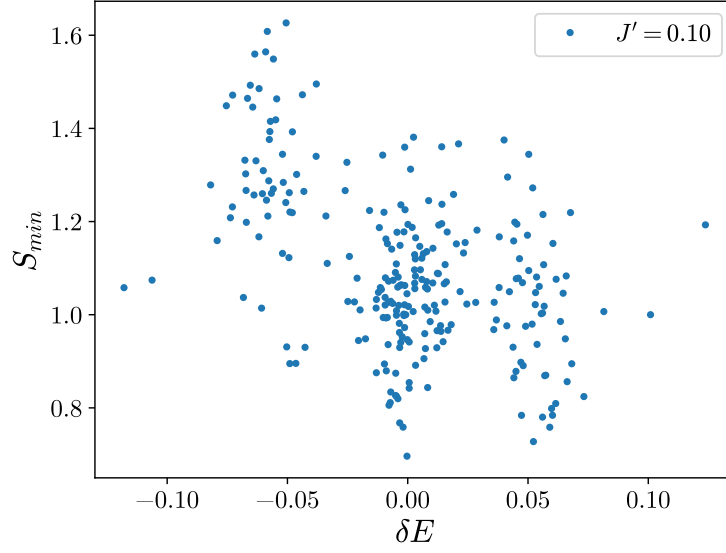


Figure 144: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

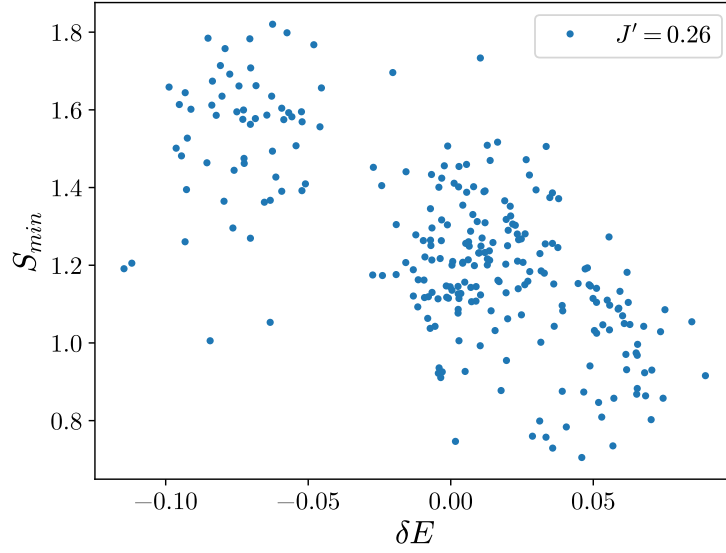


Figure 145: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

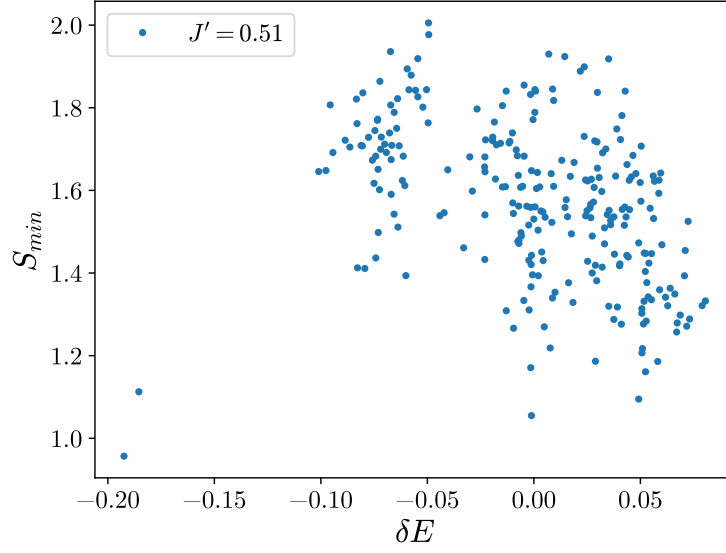


Figure 146: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

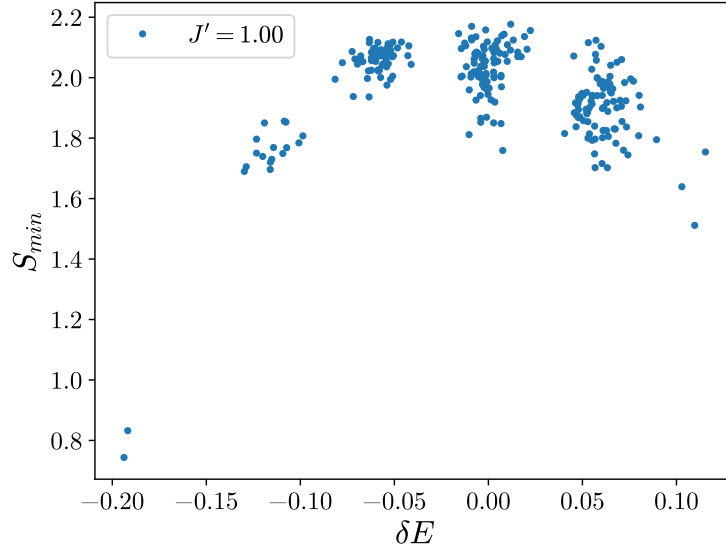


Figure 147: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

3 XXZ

3.1 Time evolution of $\langle m_z \rangle$, S , $\langle s_c \rangle$, and l with quench at $\tau = 100$

3.1.1 Single run

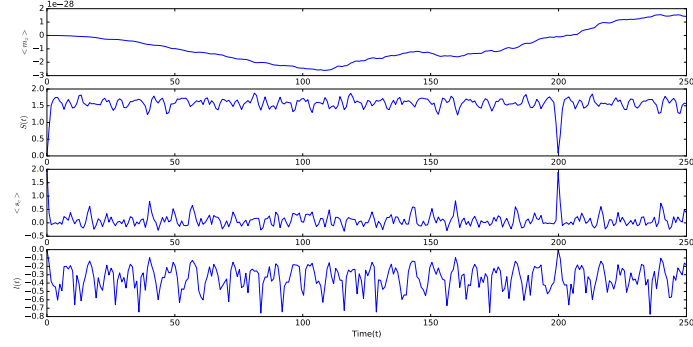


Figure 148: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

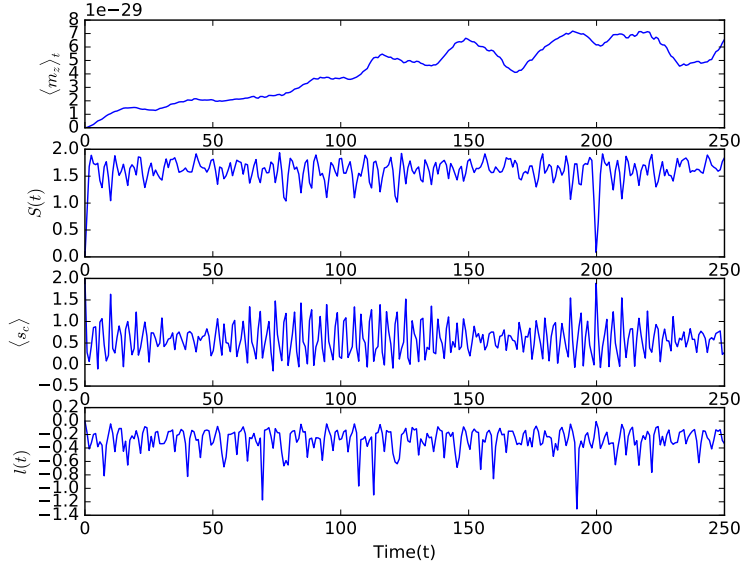


Figure 149: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ without disorder.

3.1.2 Averaged over several runs

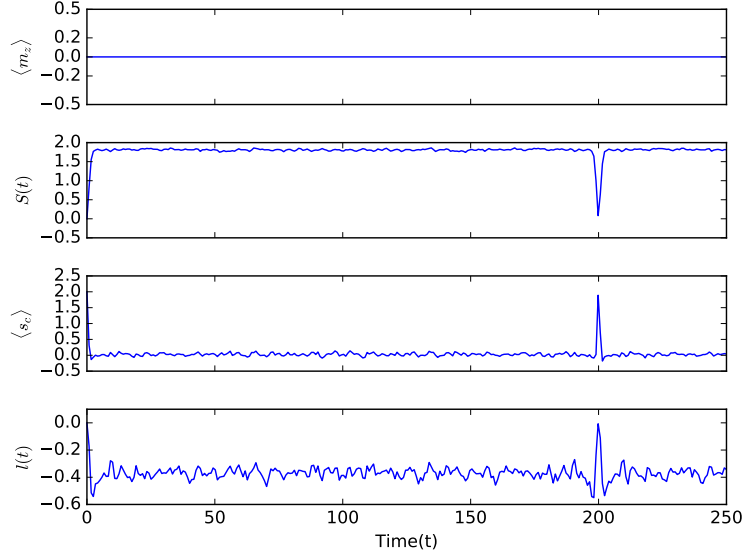


Figure 150: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$.

3.2 Energy resolved analysis

3.2.1 Initial energy vs δE

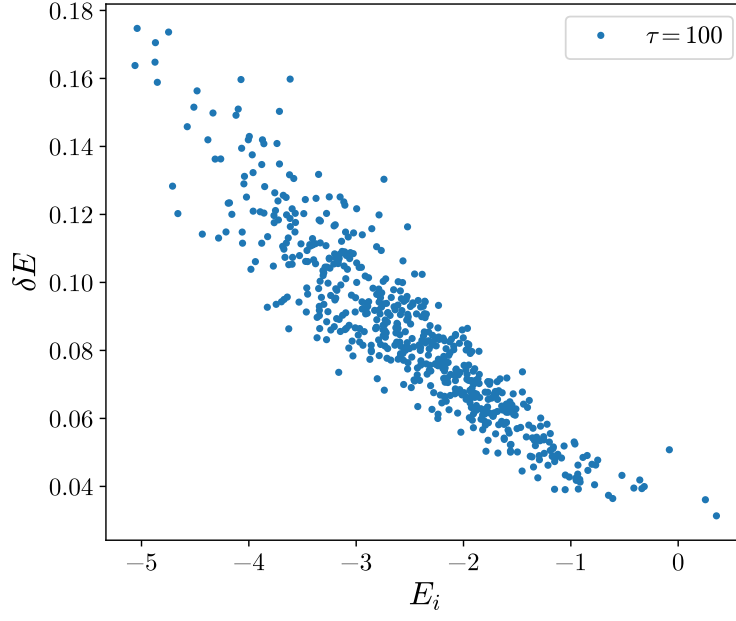


Figure 151: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

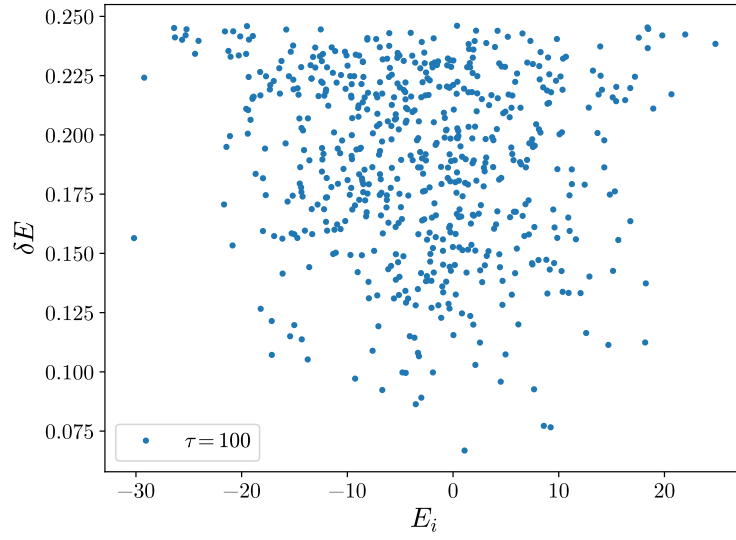


Figure 152: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.2.2 Initial energy vs samples

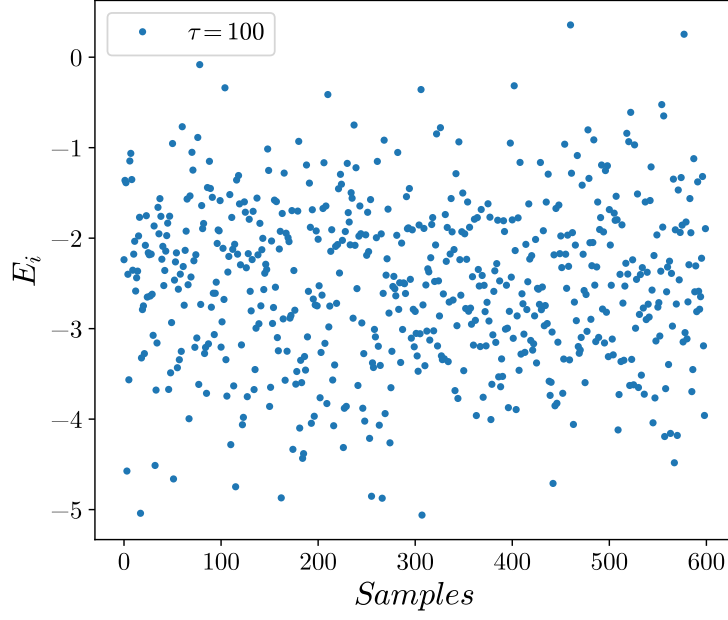


Figure 153: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

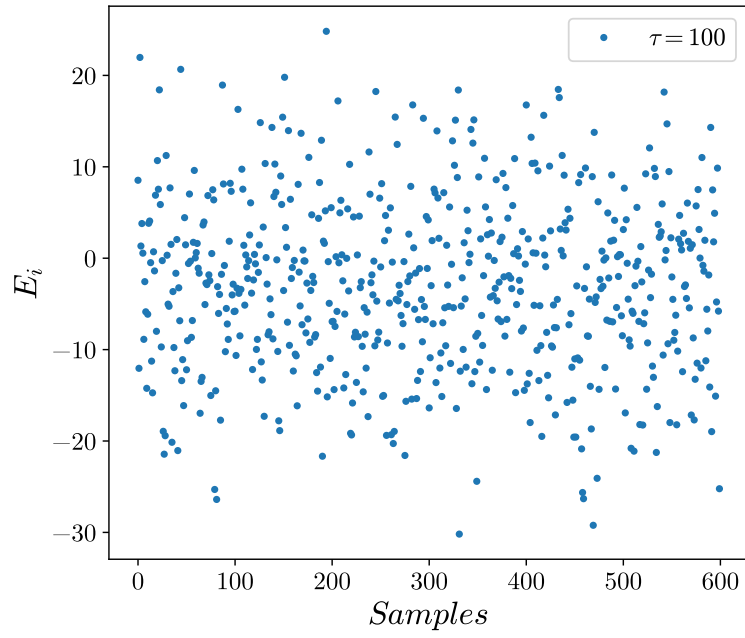


Figure 154: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.2.3 S_{min}/S_{max} vs δE

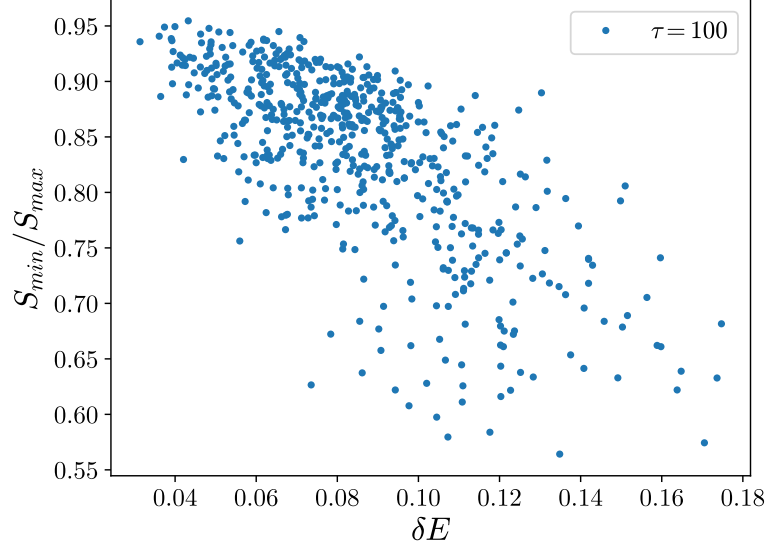


Figure 155: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

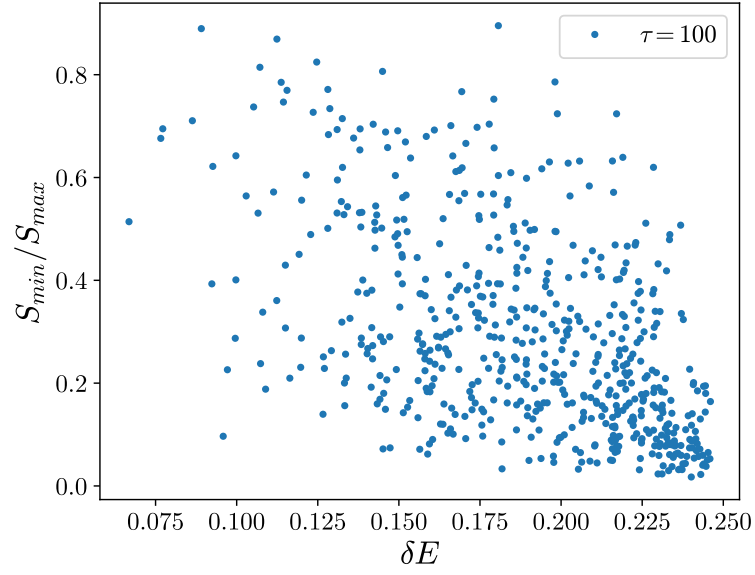


Figure 156: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.3 S vs t

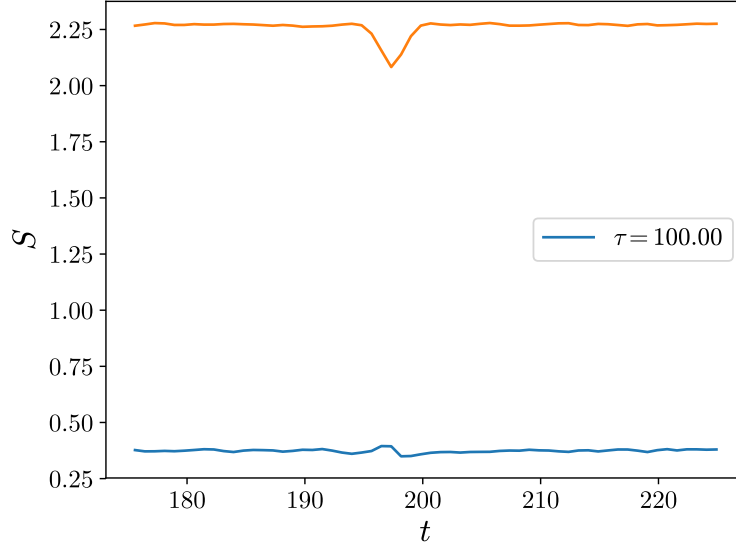


Figure 157: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

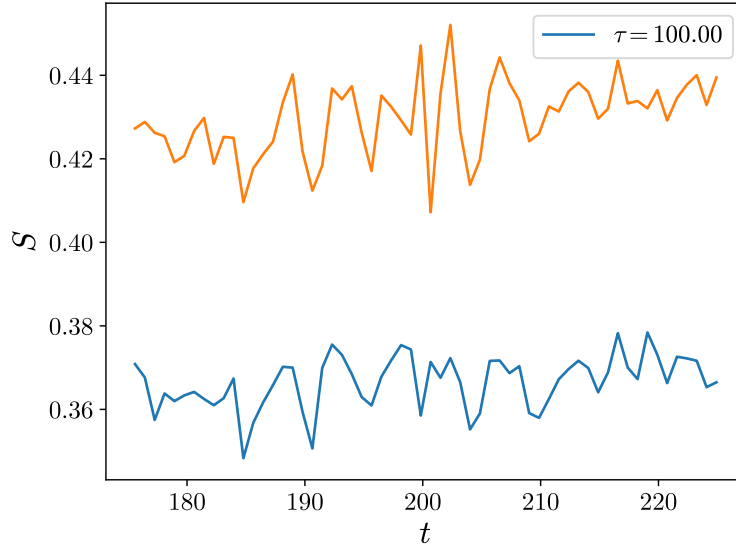


Figure 158: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.4 S_{min}/S_{max} vs τ

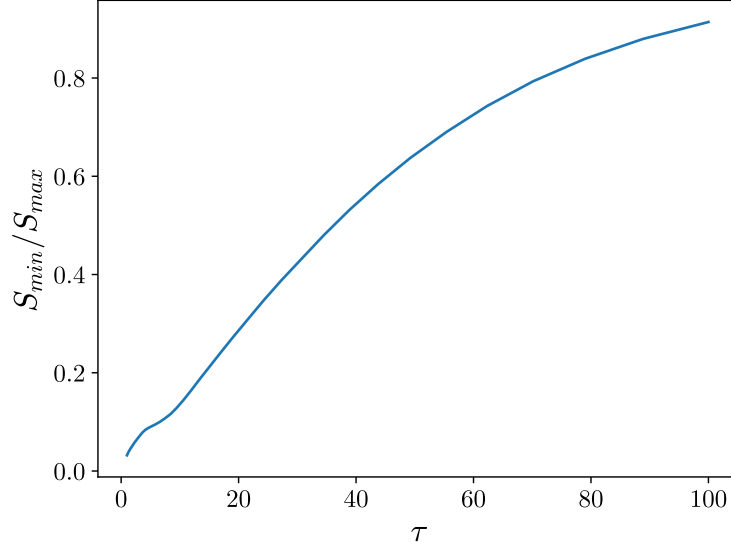


Figure 159: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

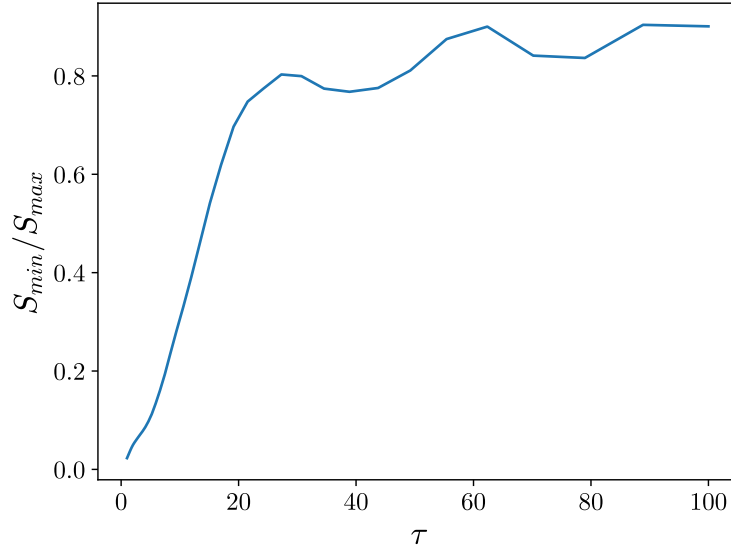


Figure 160: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.