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Distinguishing Integrable and Non-Integrable systems using quantum quenches

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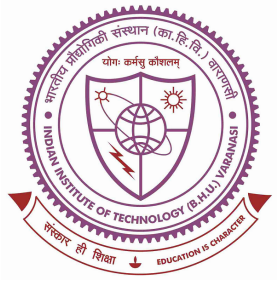

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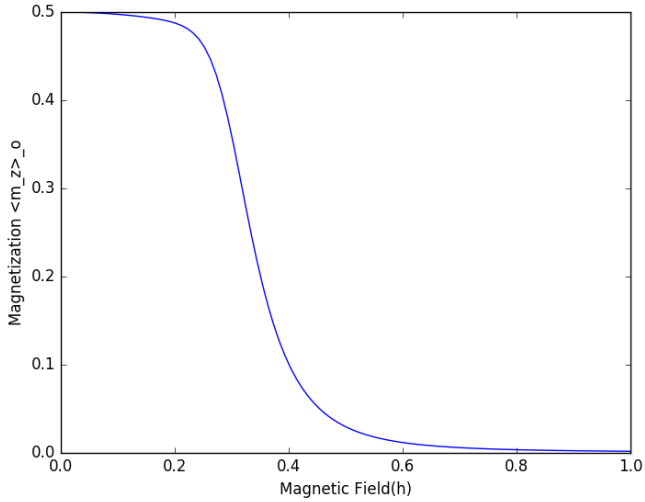

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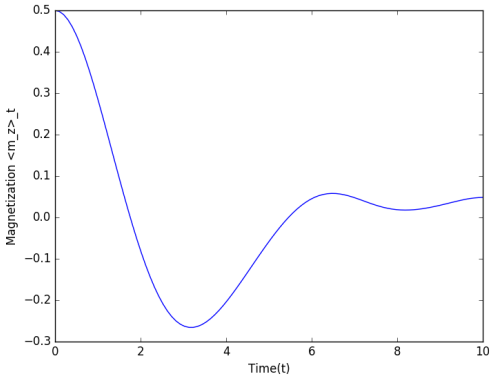
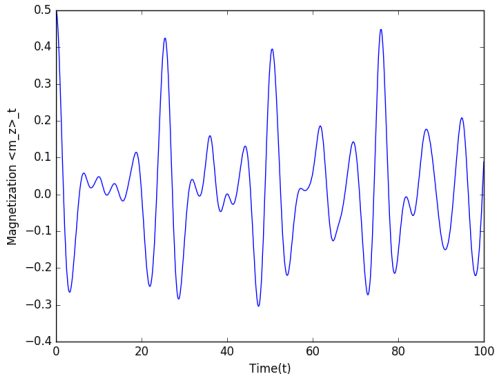
1.2 $\langle m_z \rangle$ vs t



(a) t = 10sec.



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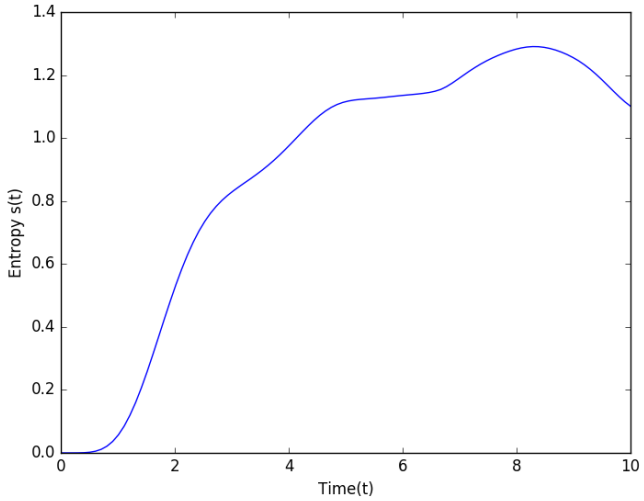

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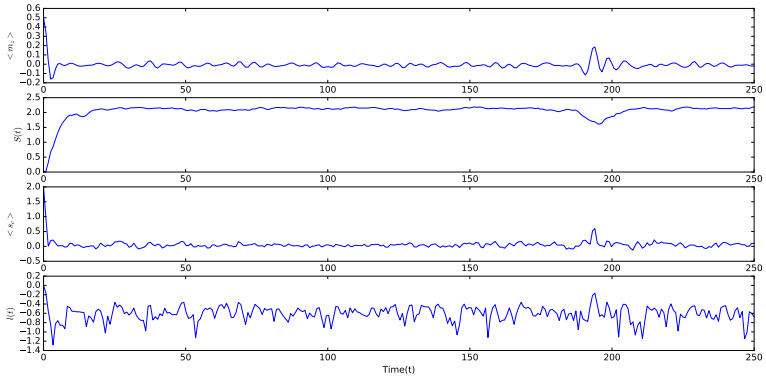

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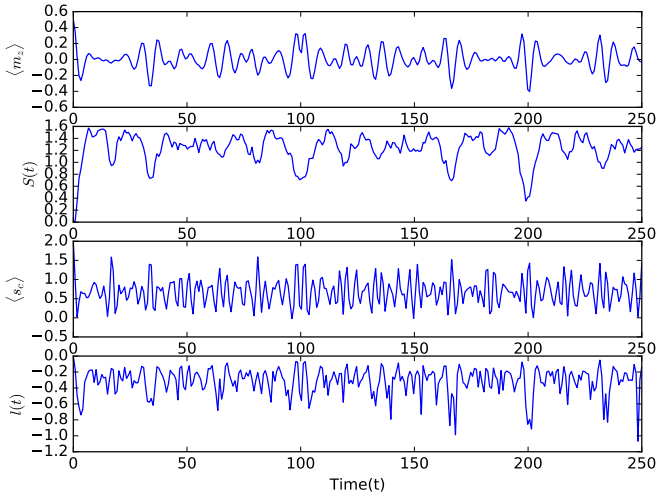

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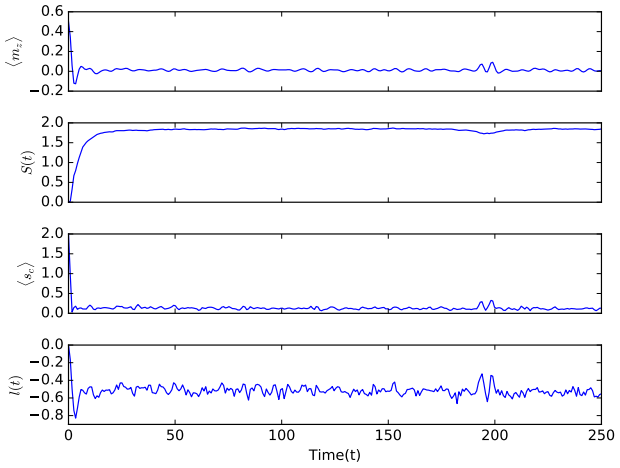

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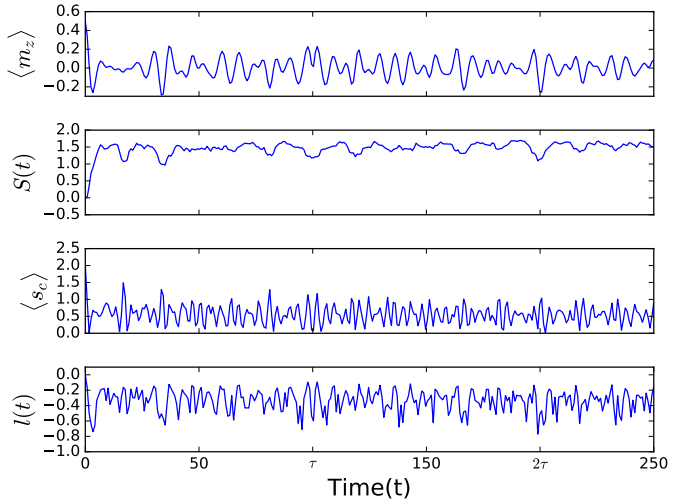

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2 ANNNI

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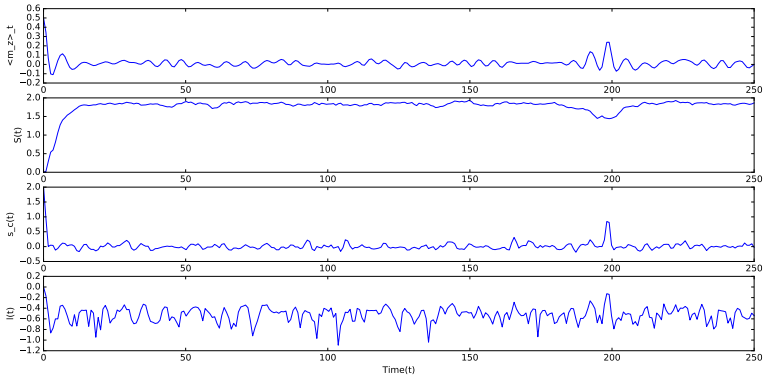
2.1.1 Single run



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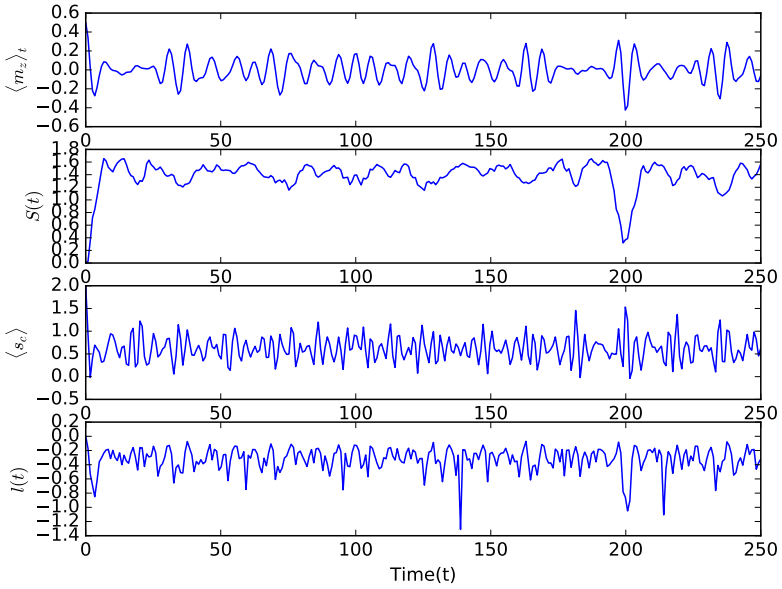

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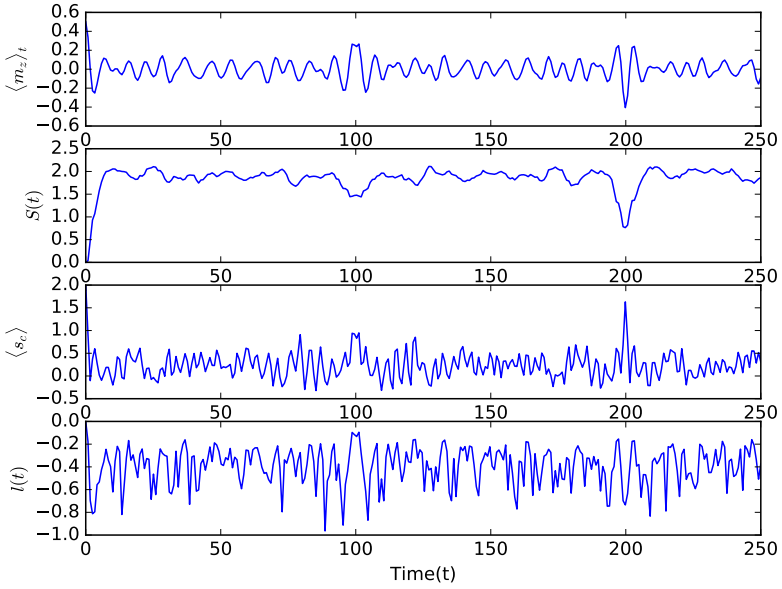

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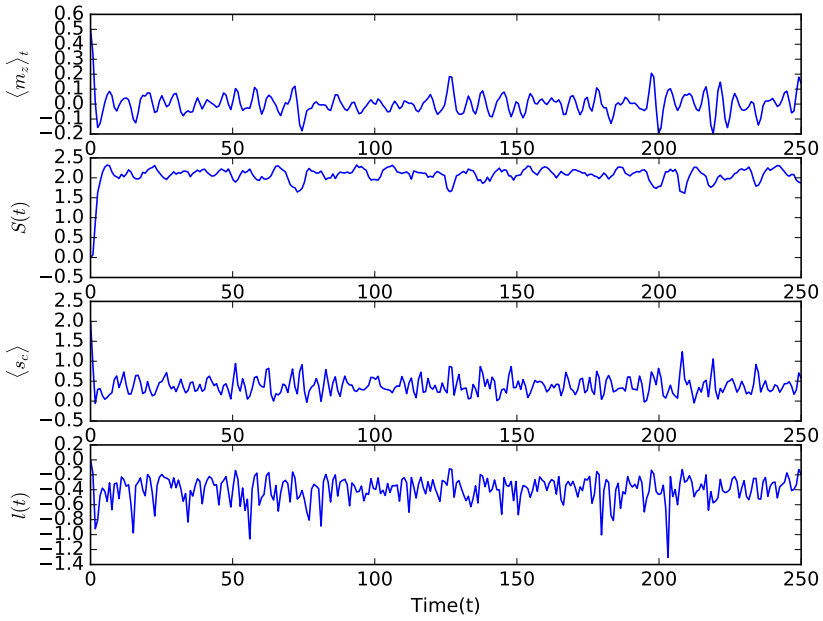

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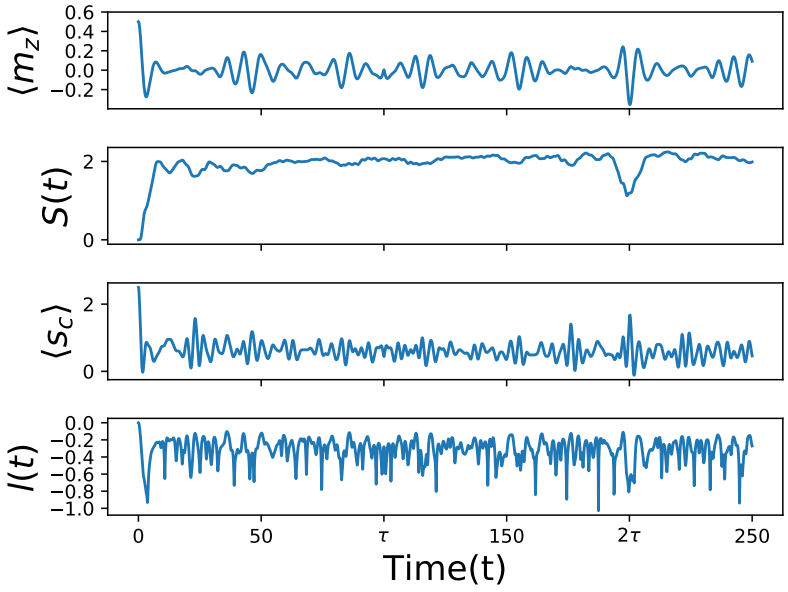

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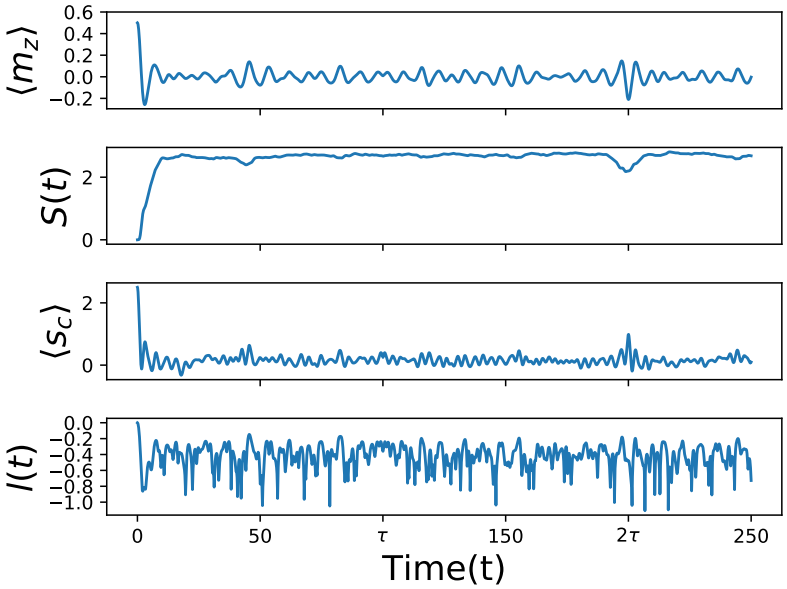

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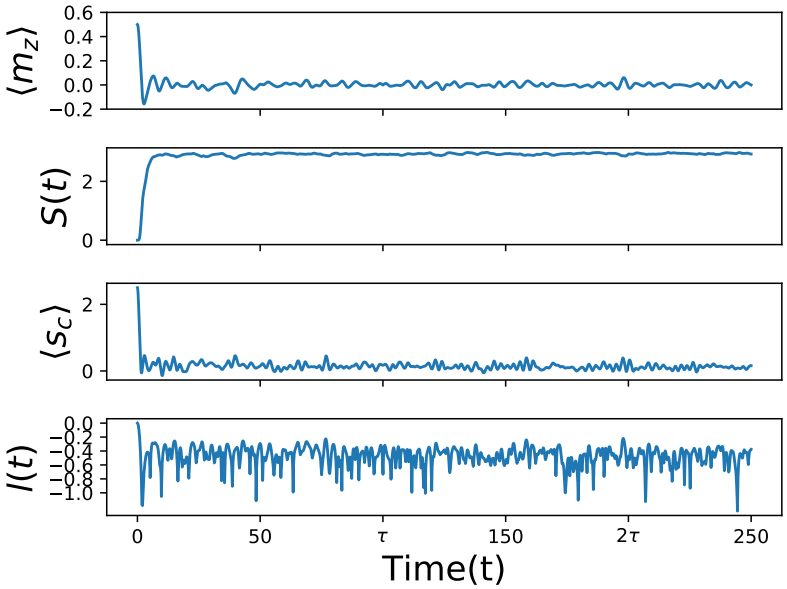

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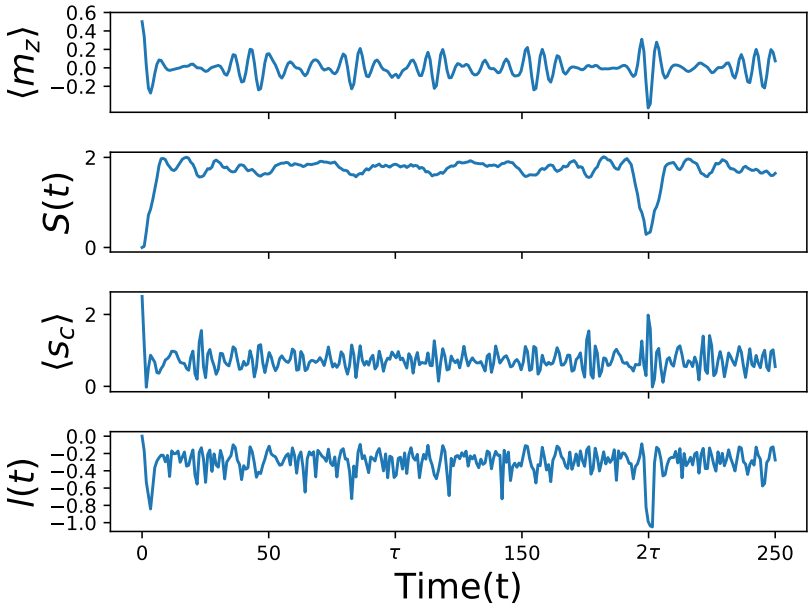

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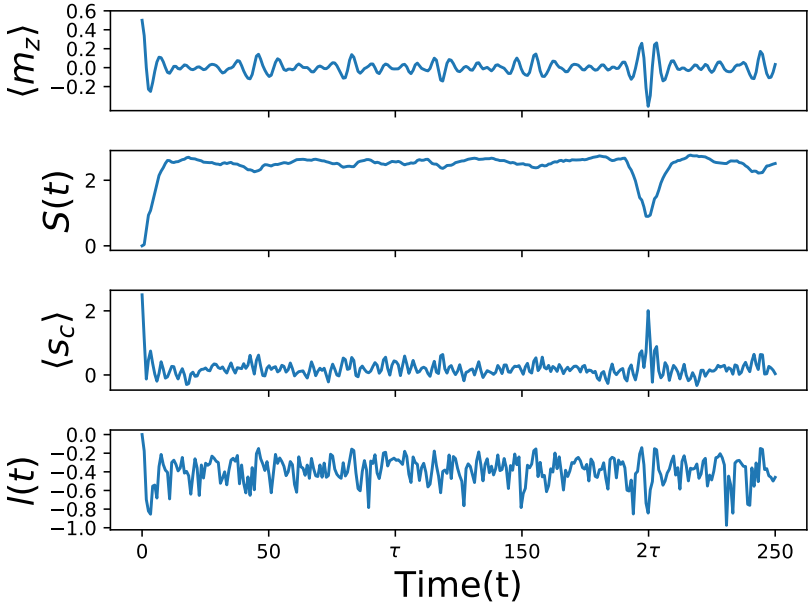

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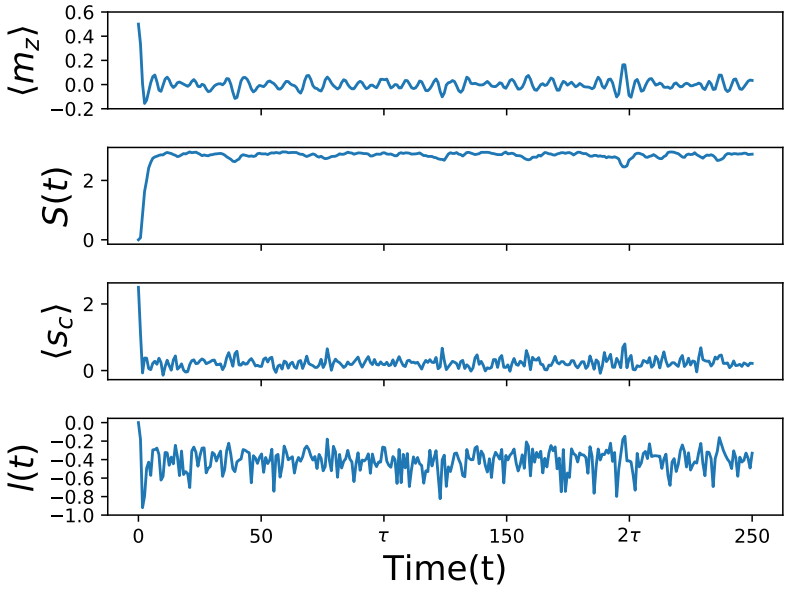

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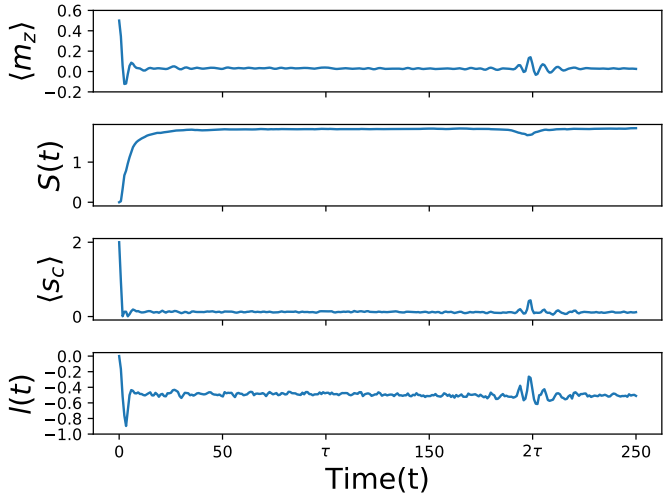

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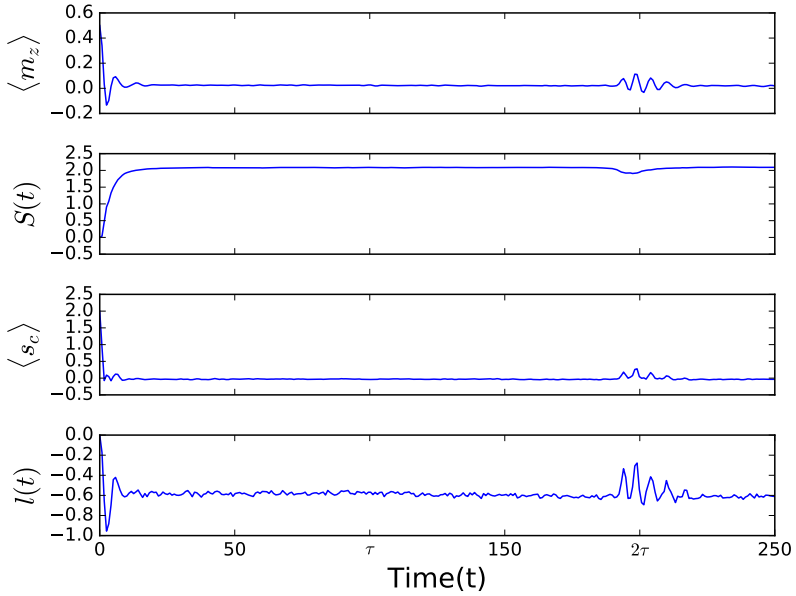

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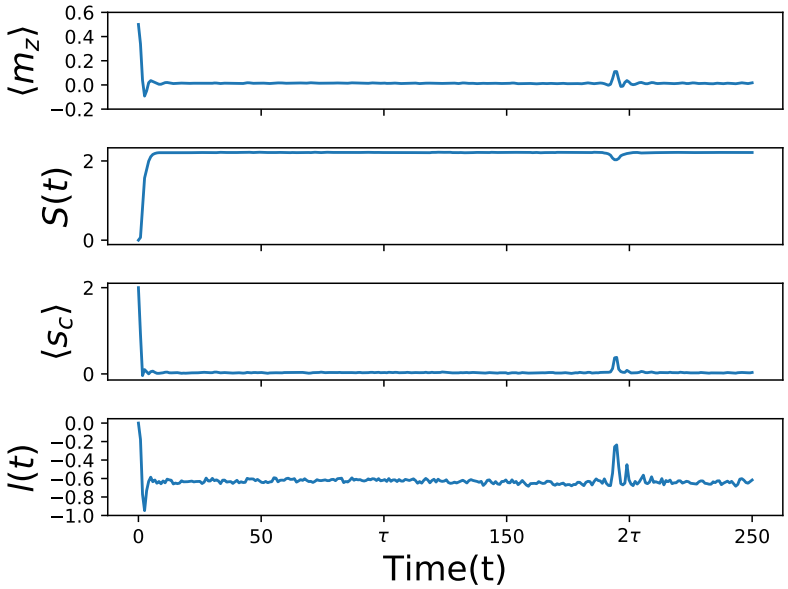

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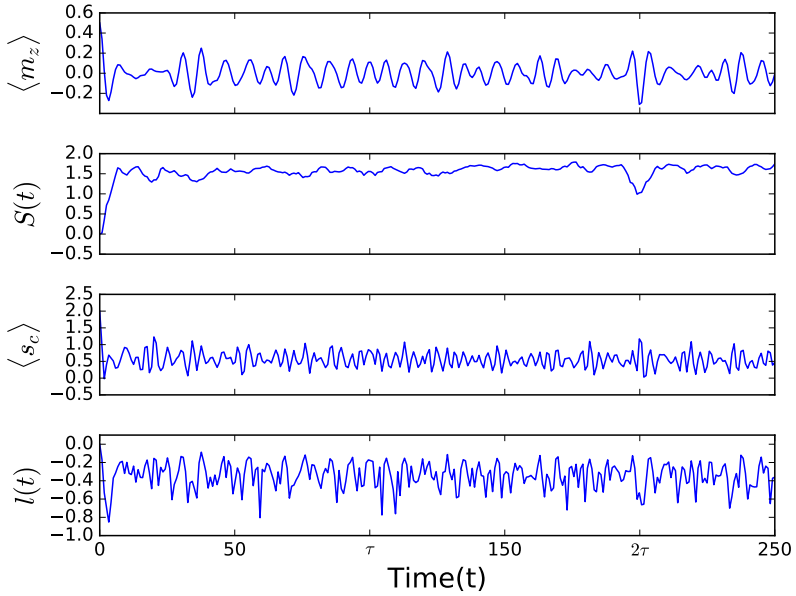

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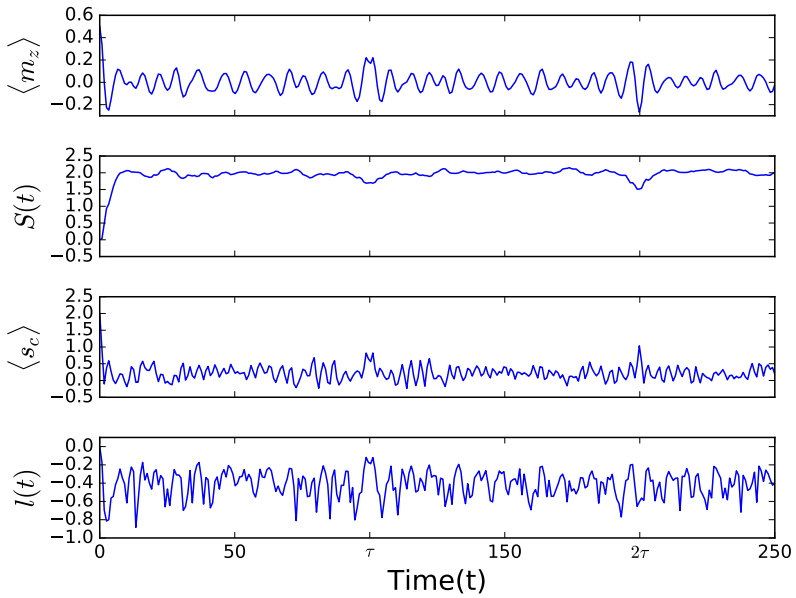

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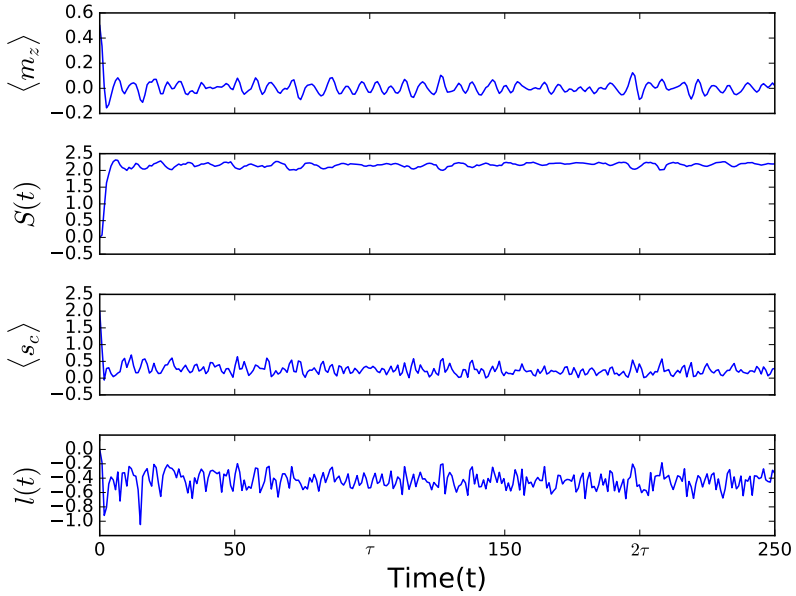

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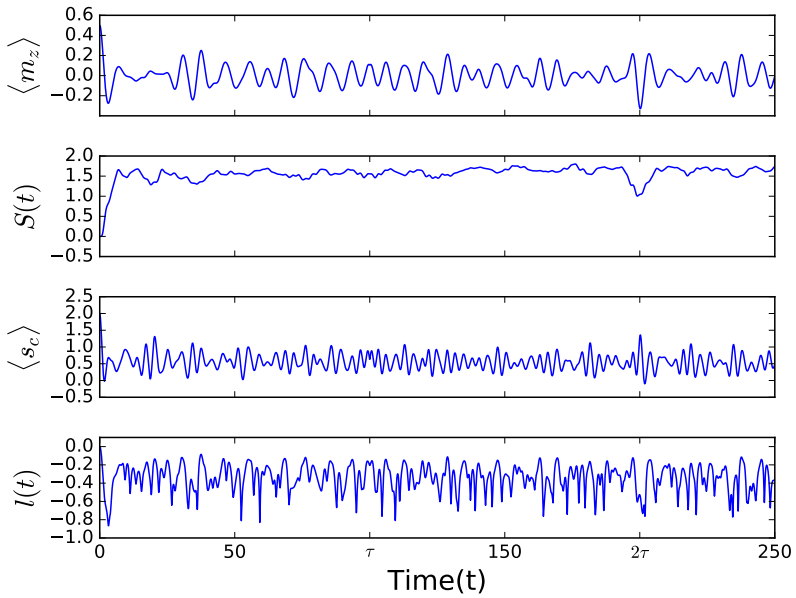

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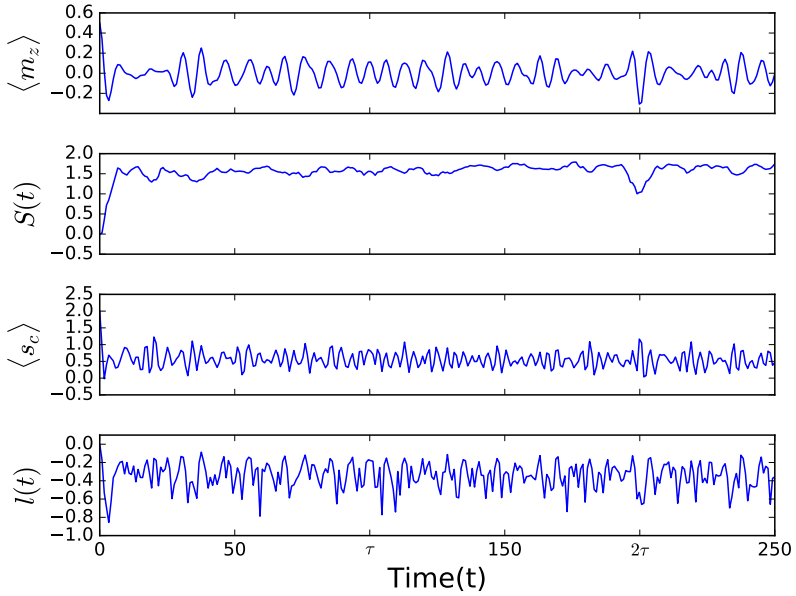

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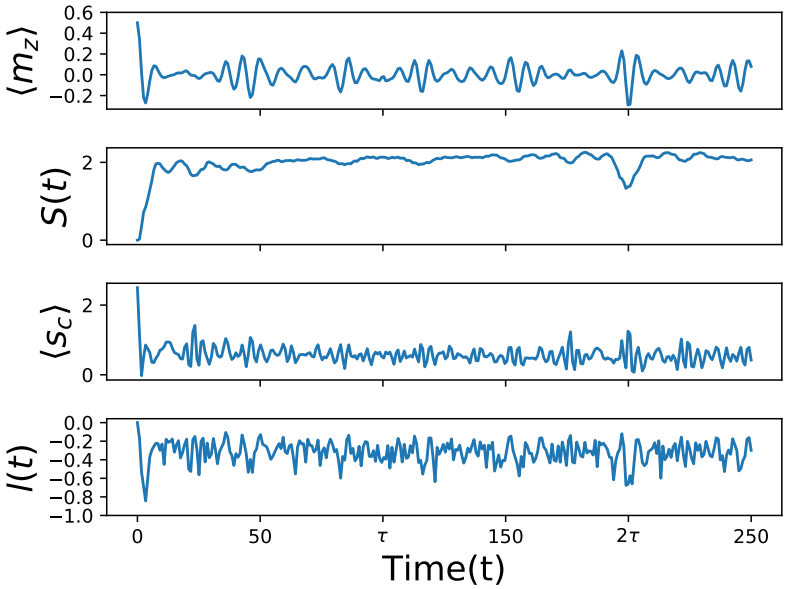

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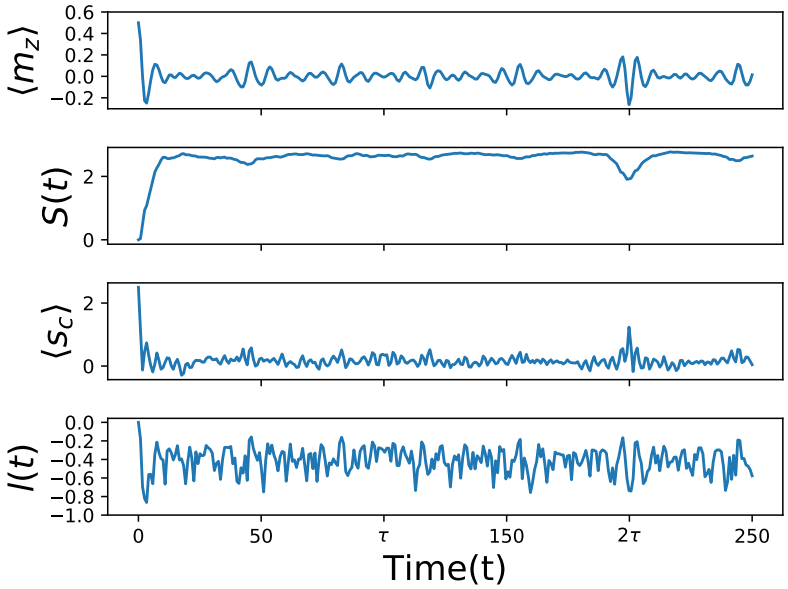

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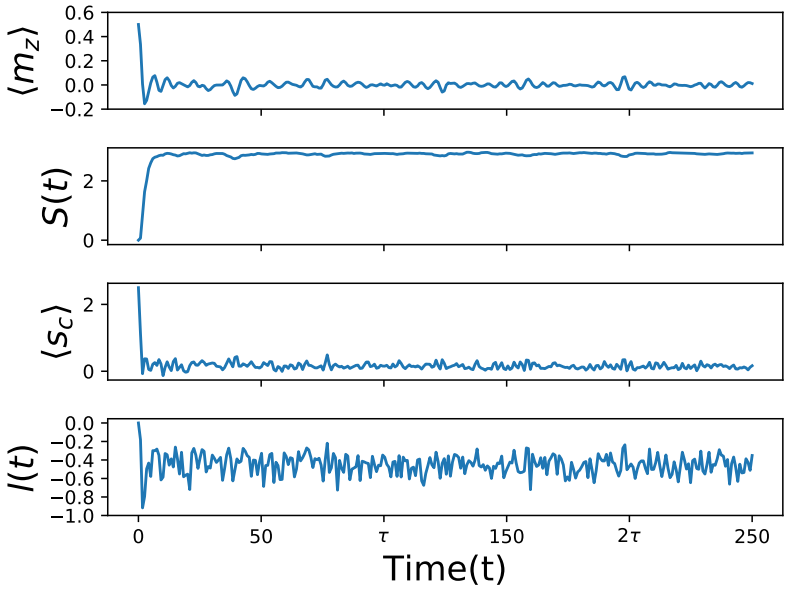

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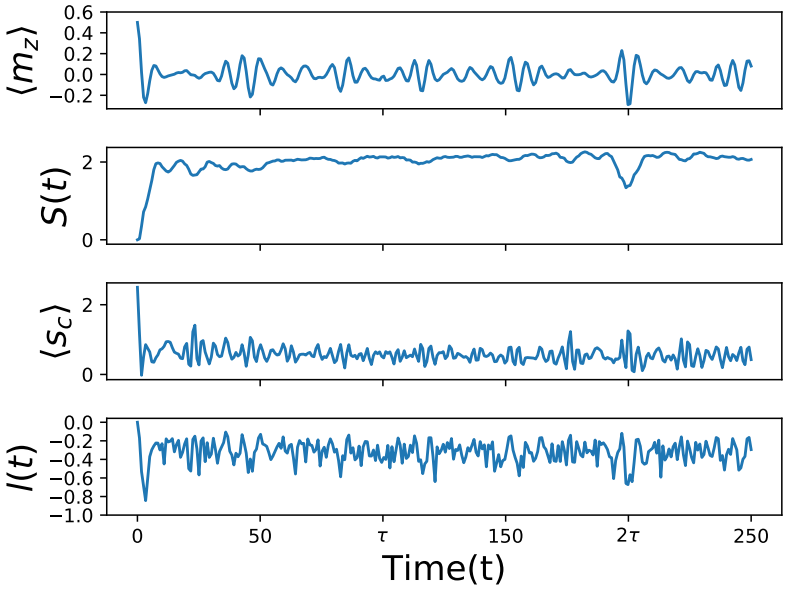

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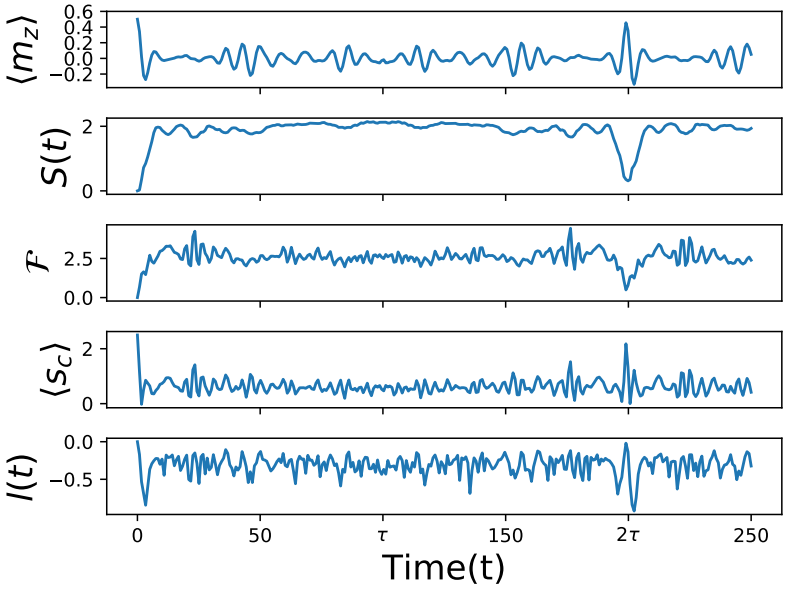

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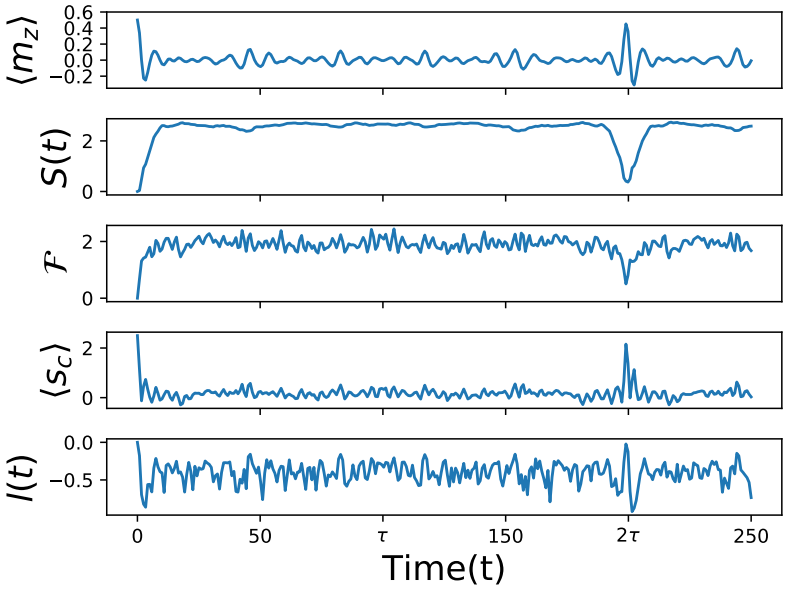

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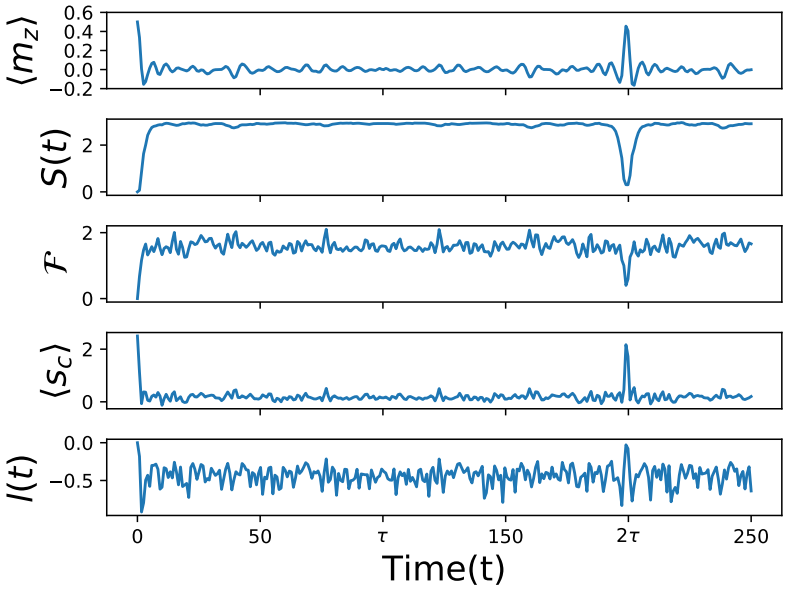
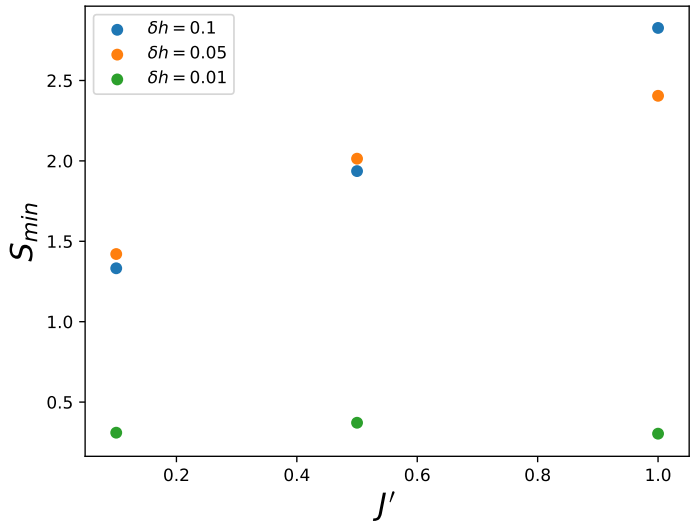


Figure 32: $N = 10, J = 1, J' = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$.

2.2 S_{min} vs J'



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

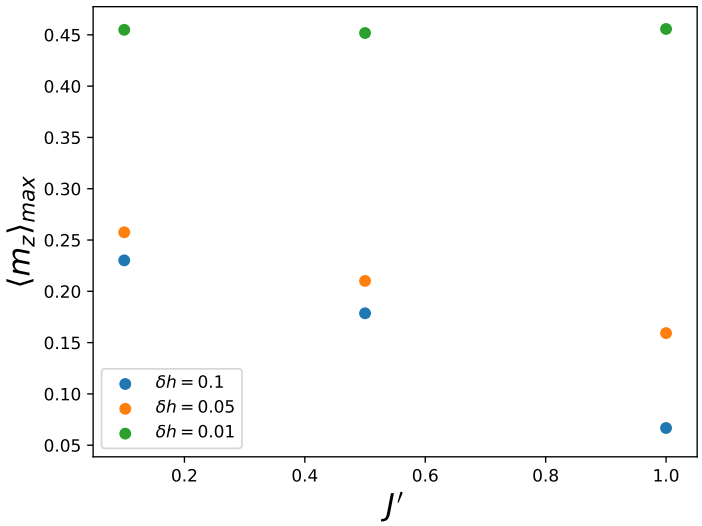


Figure 34: $N = 10, J = 1, h = 1, \tau = 100$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

2.4 S_{min} vs τ

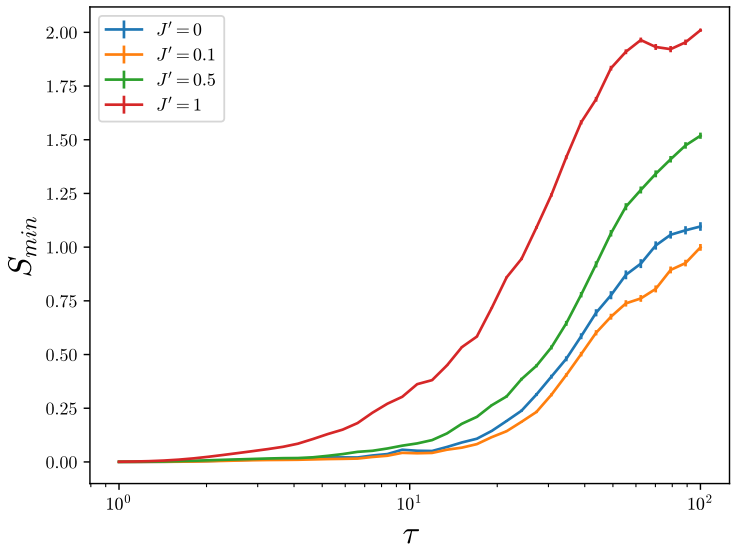
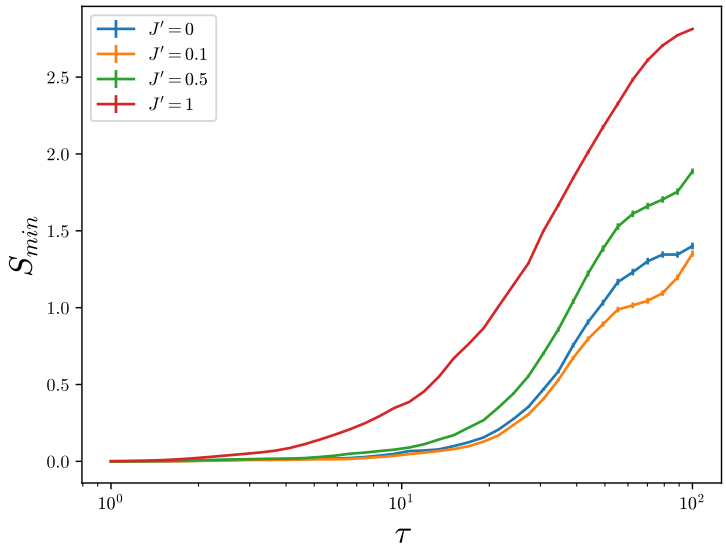


Figure 35: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.



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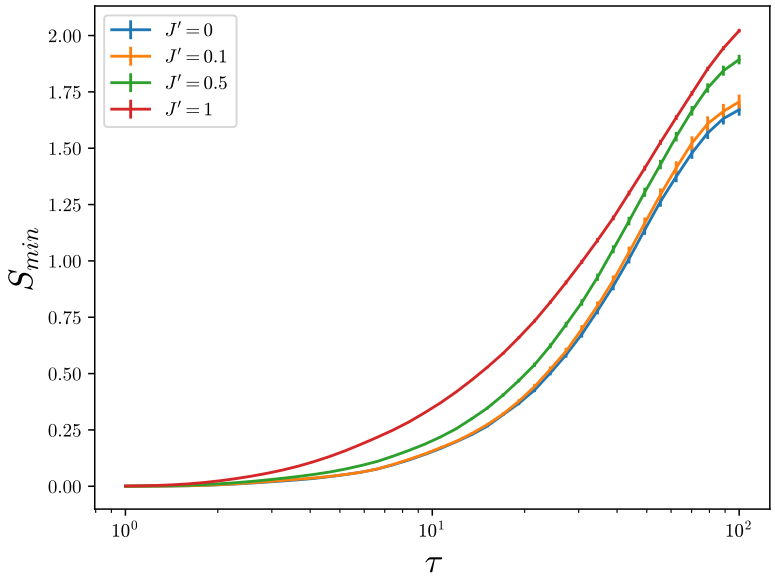

Figure 37: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

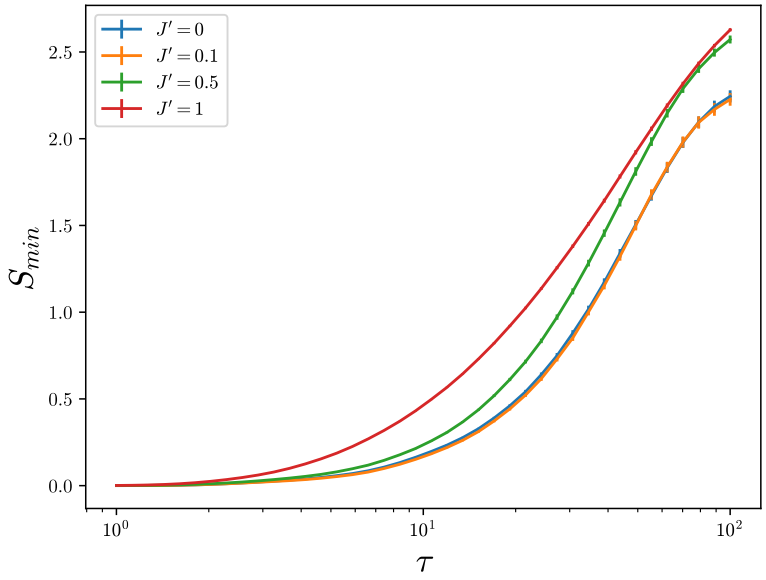

Figure 38: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

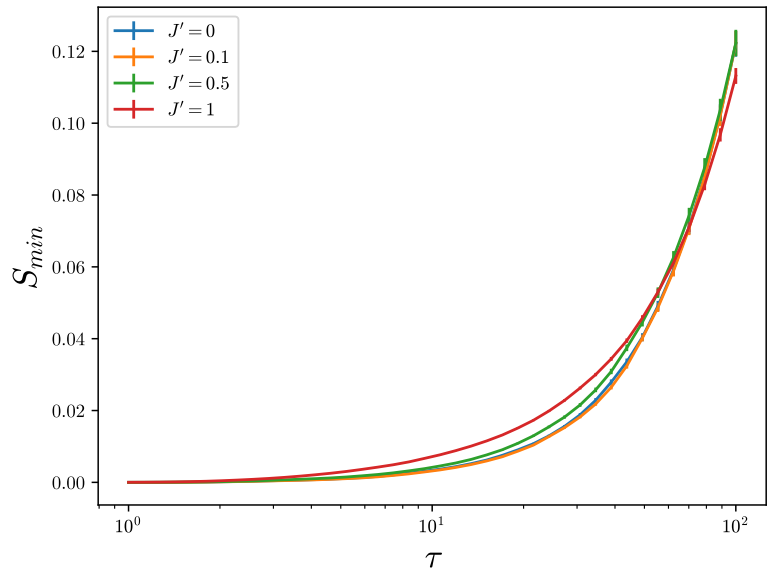

Figure 39: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

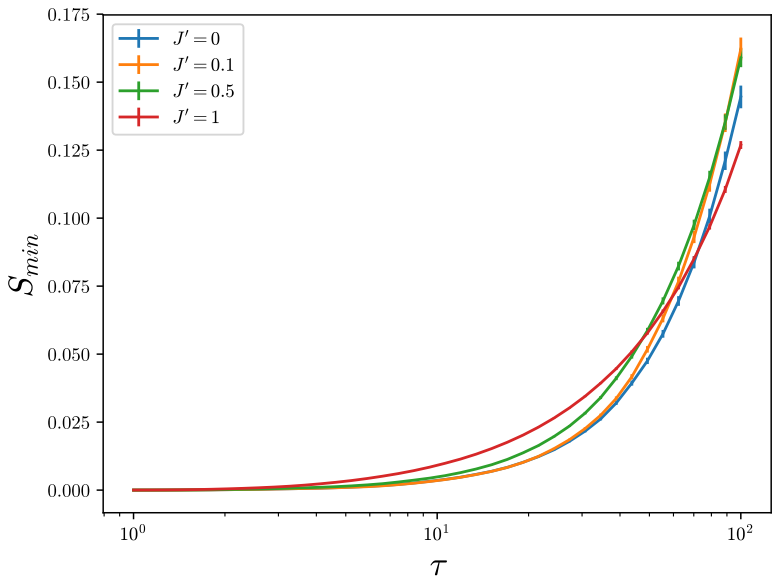

Figure 40: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

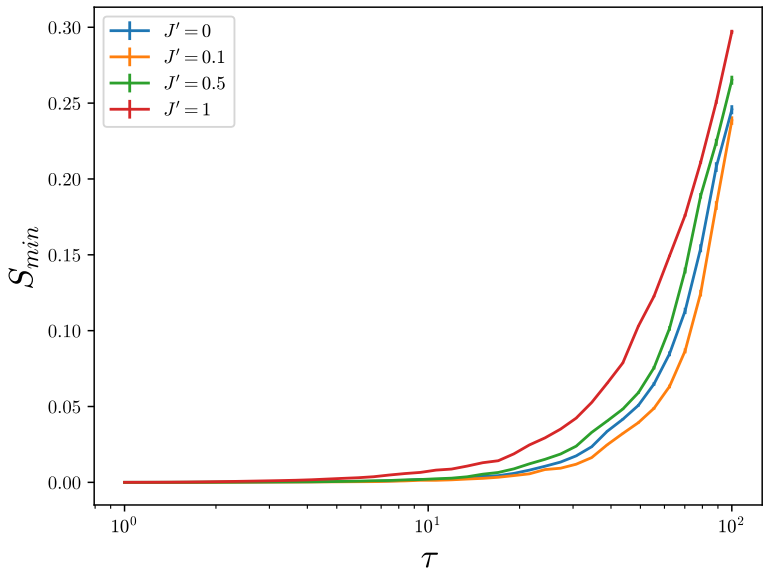

Figure 41: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

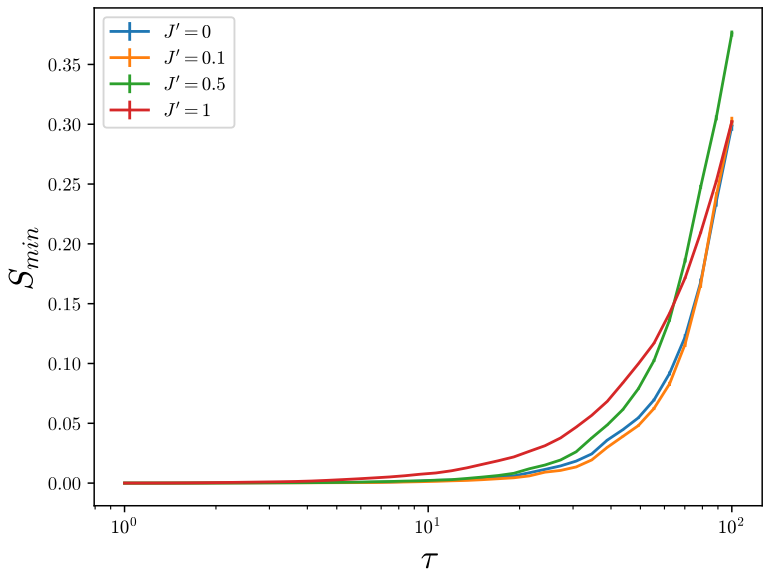

Figure 42: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

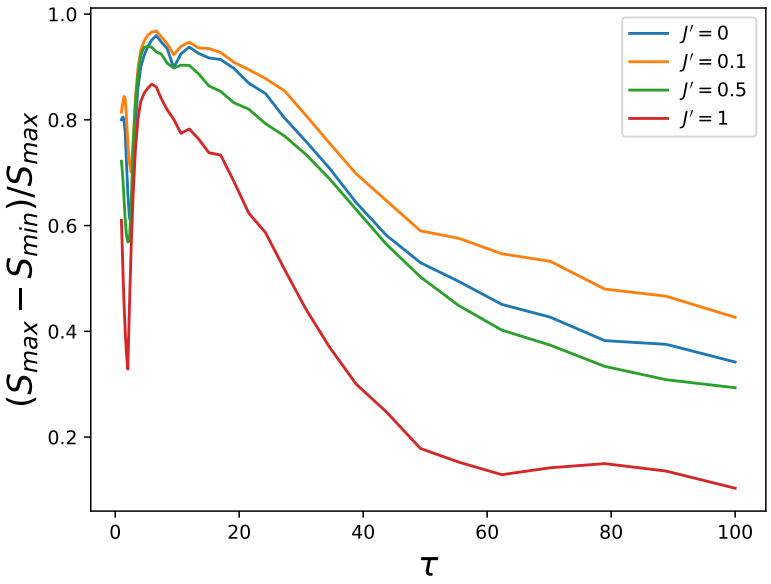

Figure 43: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations. S_{max} also calculated in window.

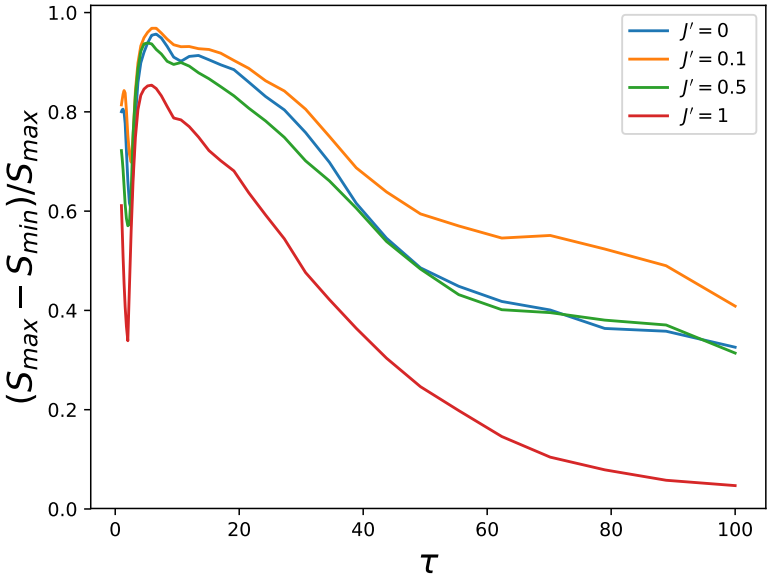

Figure 44: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations. S_{max} also calculated in window.

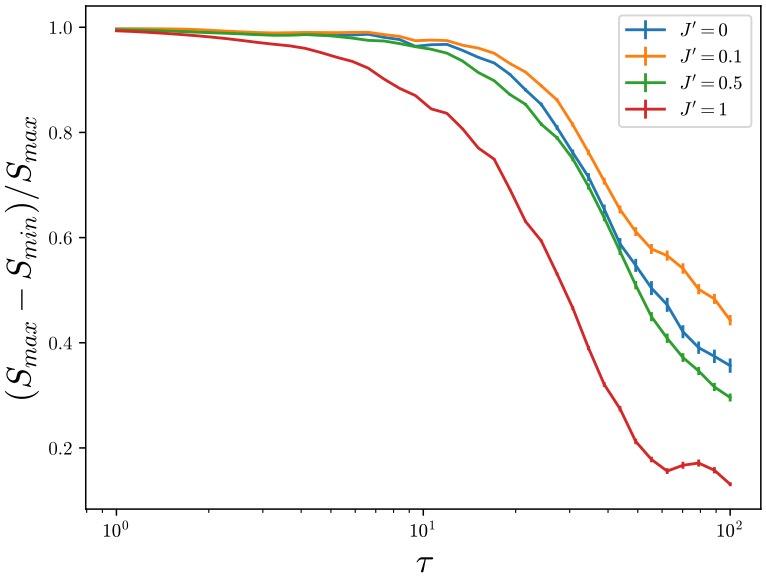

Figure 45: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

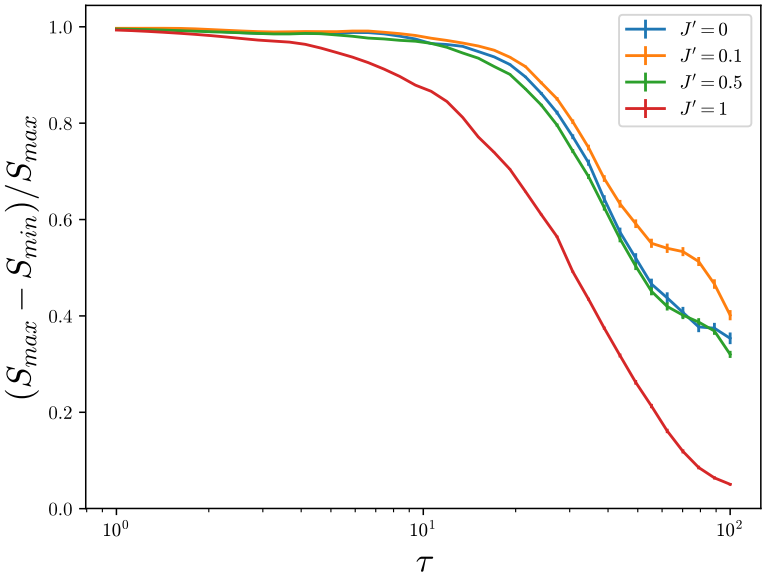

Figure 46: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

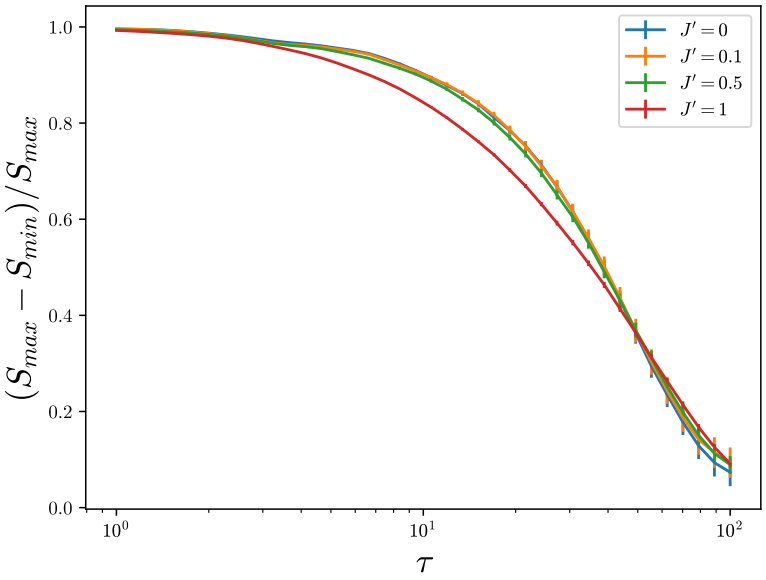

Figure 47: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

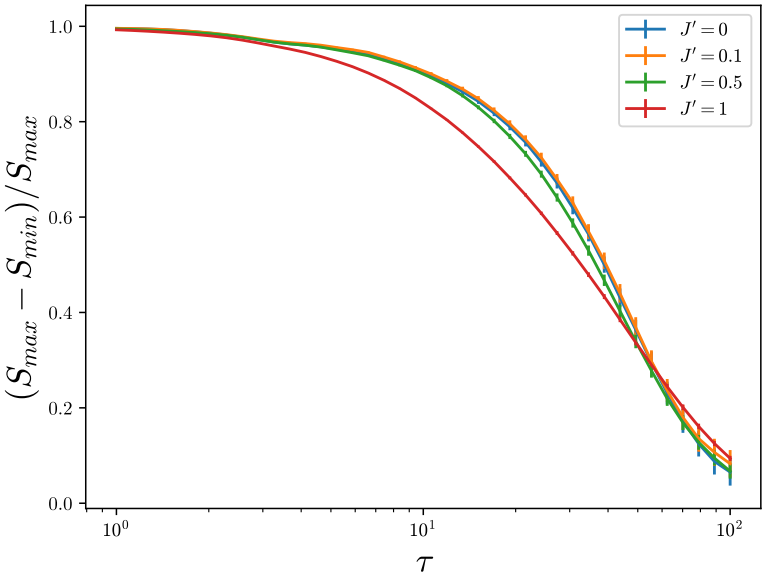

Figure 48: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

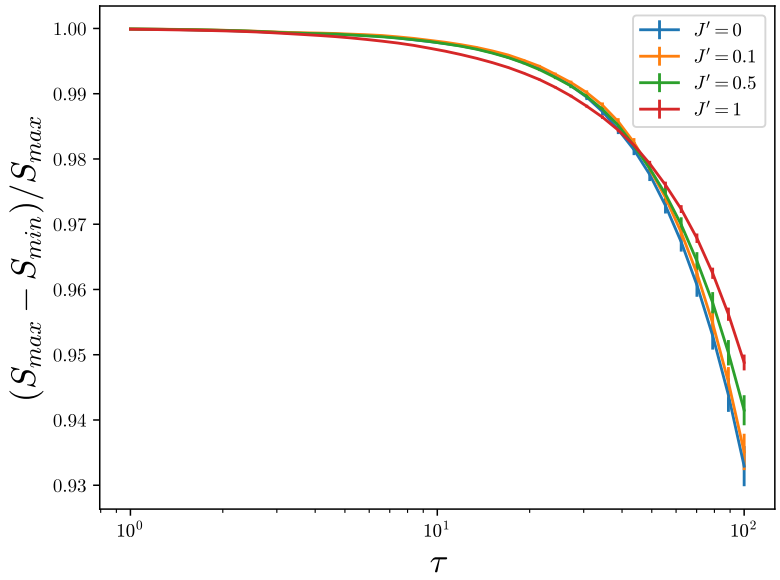

Figure 49: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

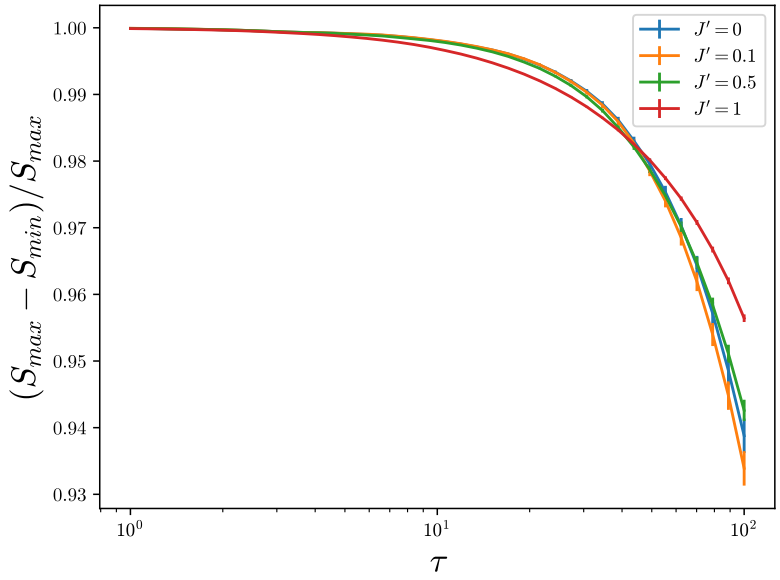

Figure 50: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

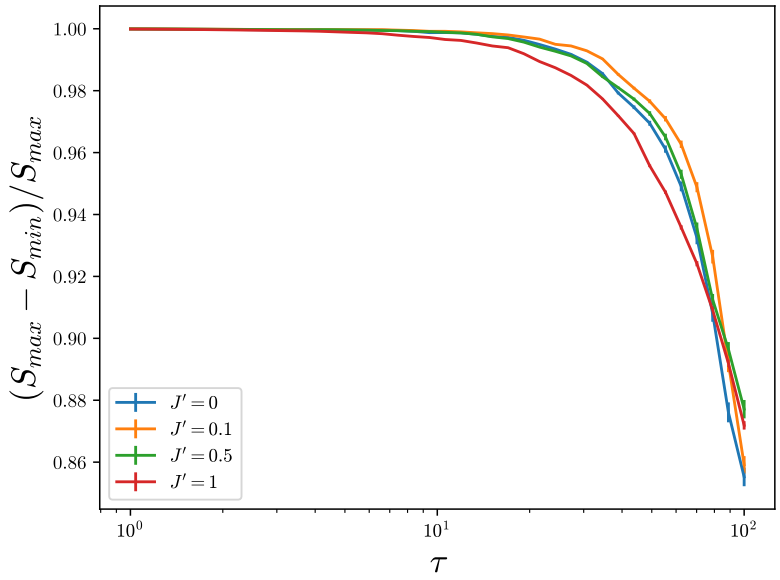

Figure 51: $N = 8, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

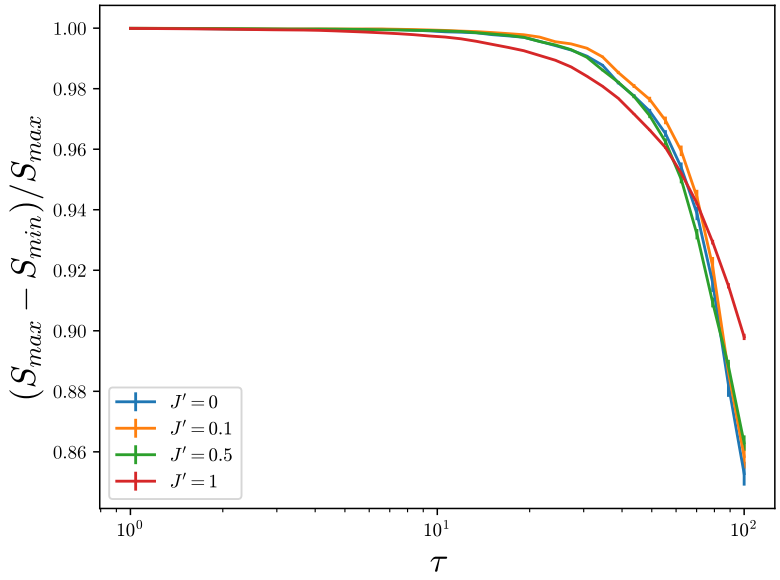

Figure 52: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

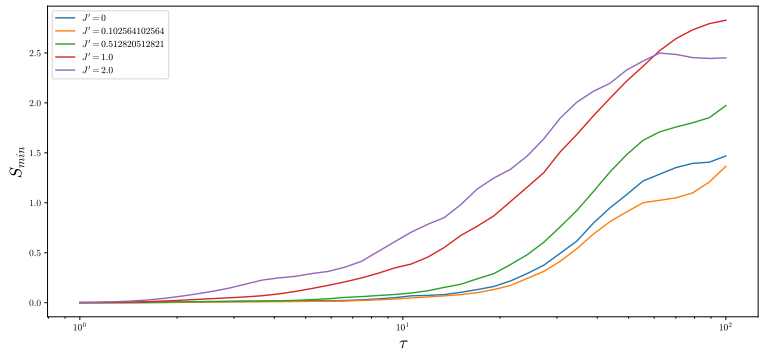

Figure 53: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations.

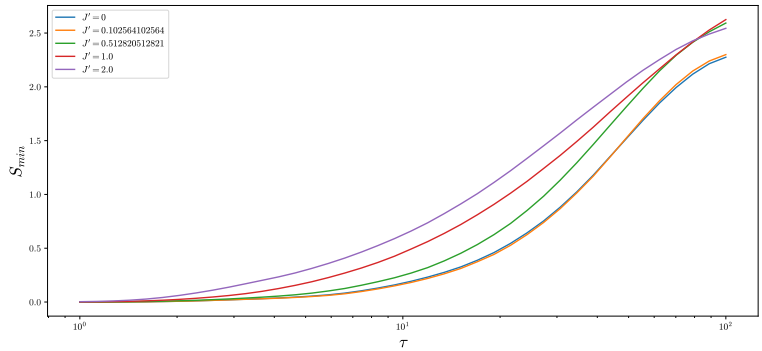

Figure 54: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations.

2.5 S_{min} vs τ vs J'

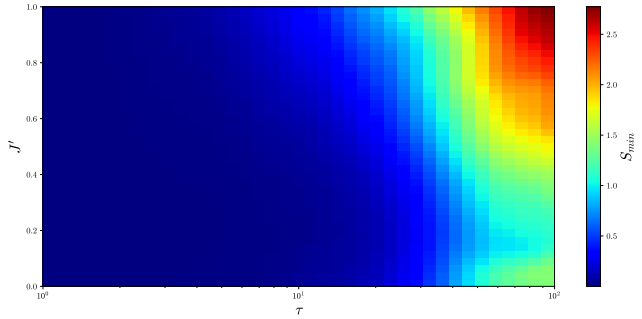

Figure 55: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

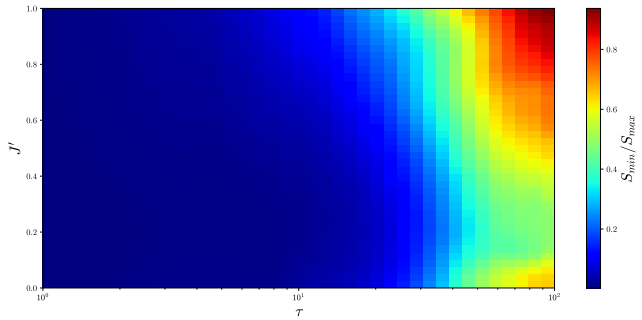

Figure 56: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

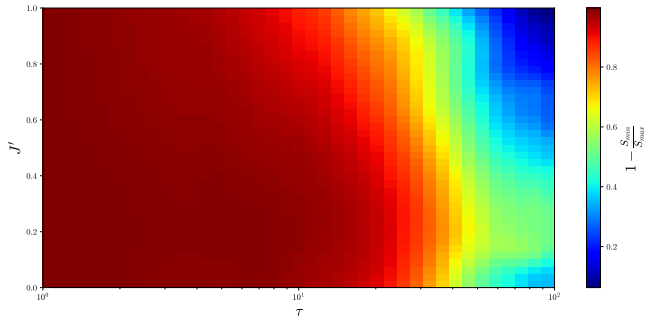

Figure 57: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

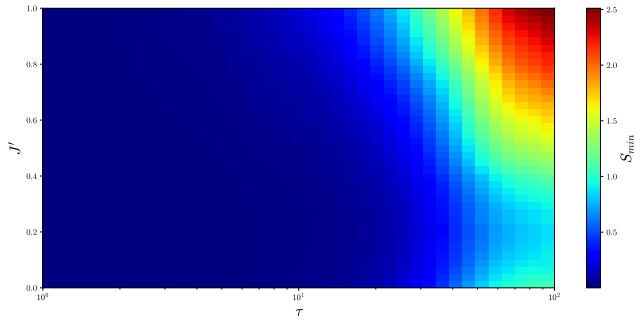

Figure 58: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

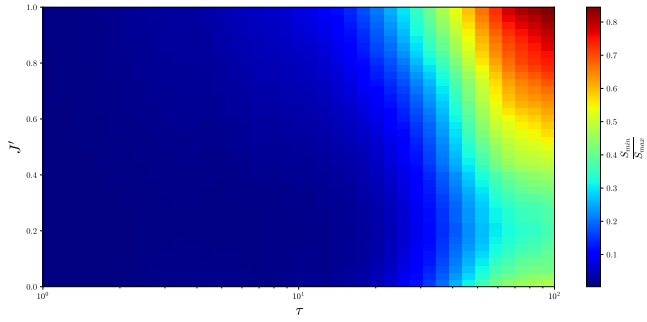

Figure 59: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

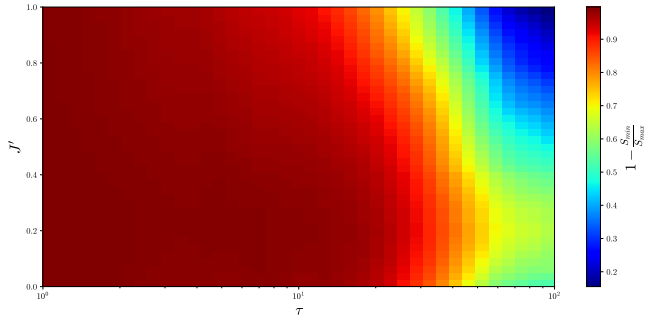

Figure 60: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, FBC.

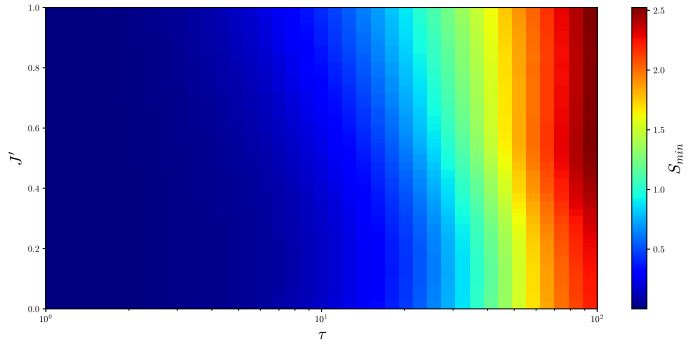

Figure 61: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

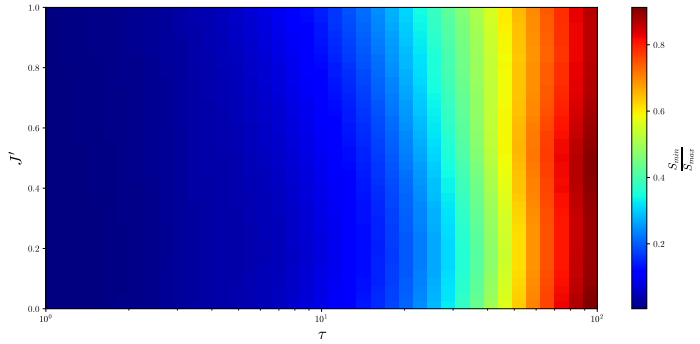

Figure 62: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

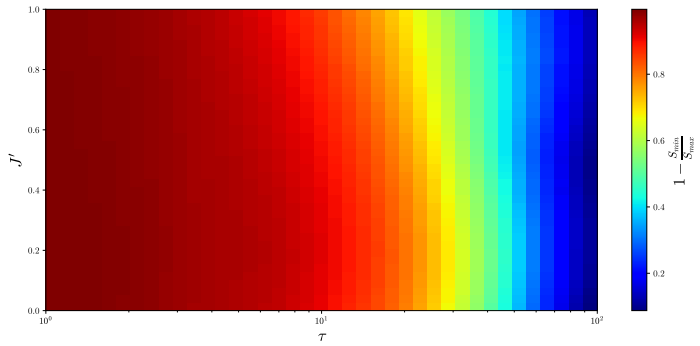

Figure 63: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$ over 100 realizations, PBC.

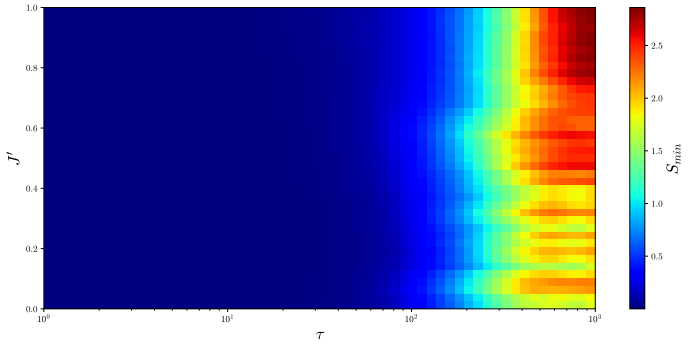

Figure 64: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

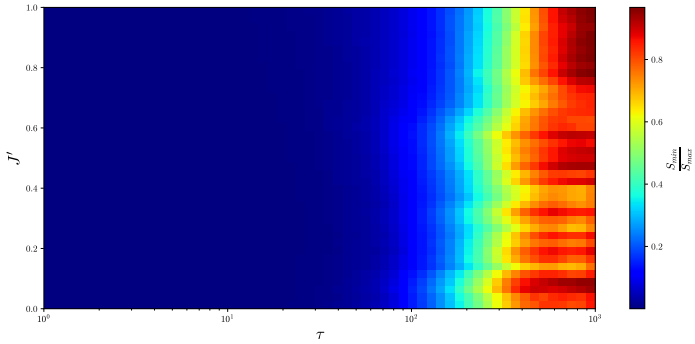

Figure 65: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

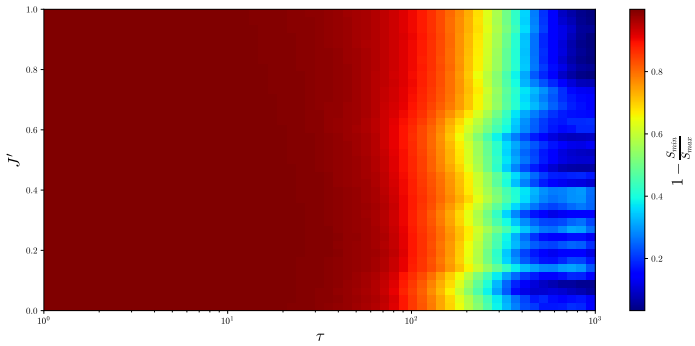

Figure 66: $N = 10, J = 1, h = 1, \delta h = 0.01$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

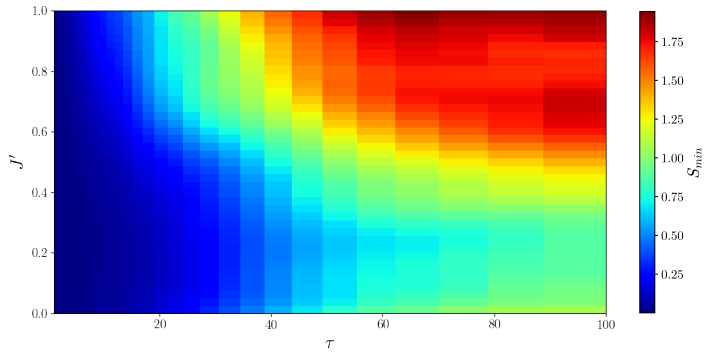

Figure 67: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

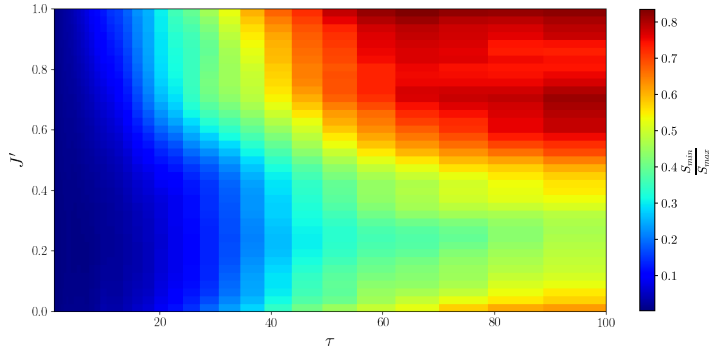

Figure 68: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

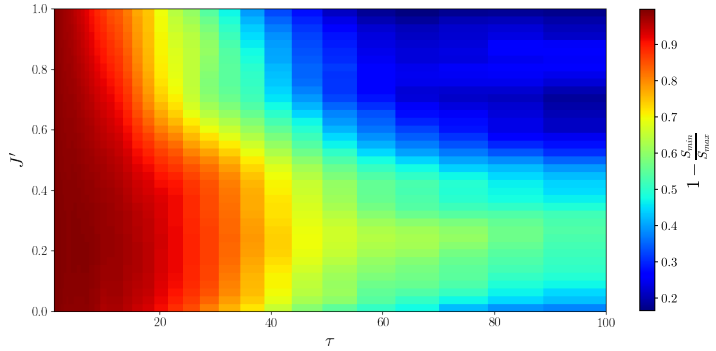

Figure 69: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

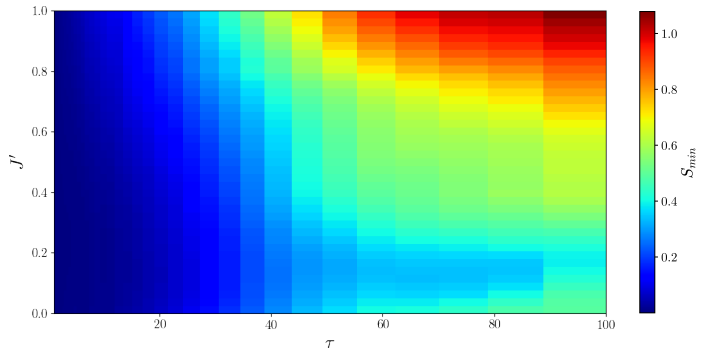

Figure 70: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

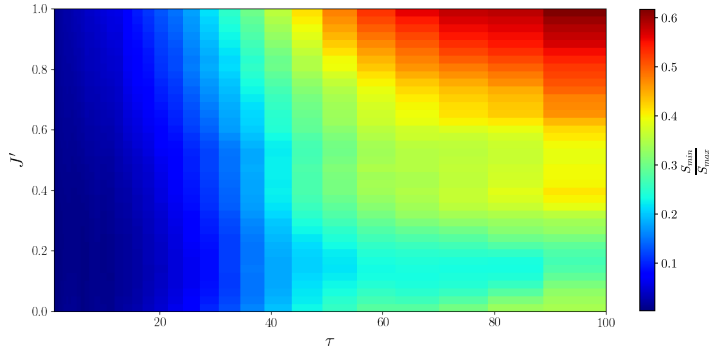

Figure 71: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

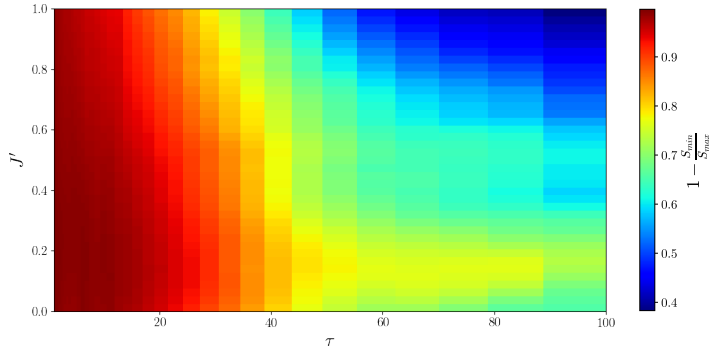

Figure 72: $N = 6, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

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

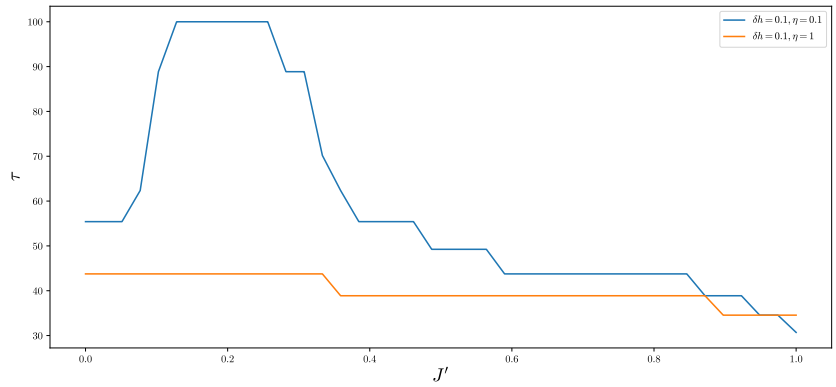

Figure 73: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder over 100 realizations, PBC.

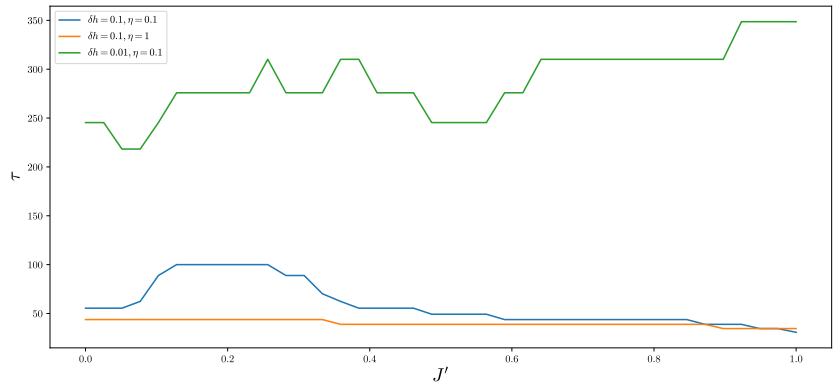

Figure 74: $N = 10, J = 1, h = 1$ with disorder over 100 realizations, PBC.

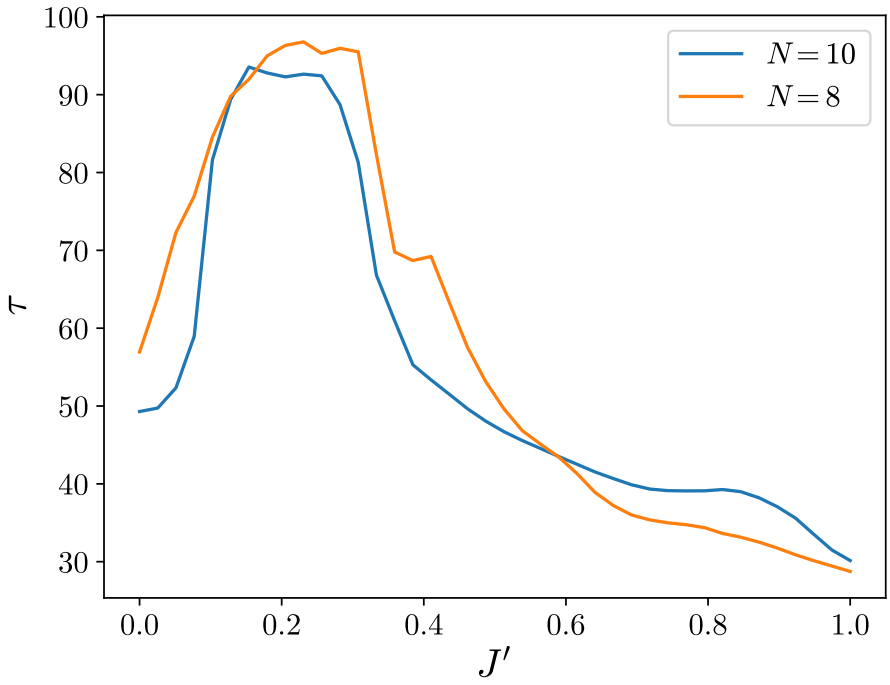

Figure 75: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

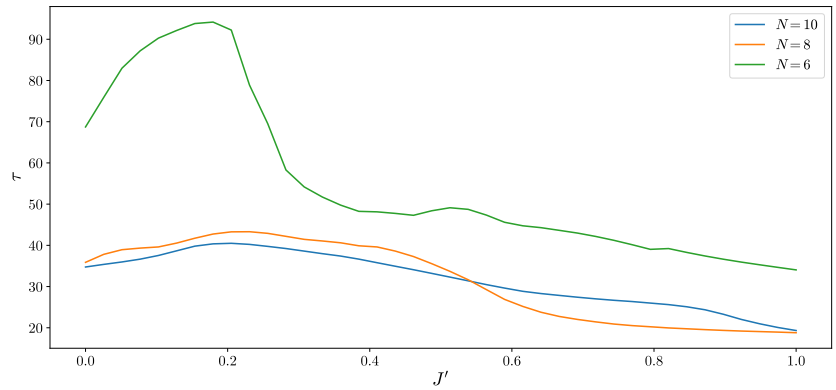

Figure 76: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC. 0.7 times the initial value

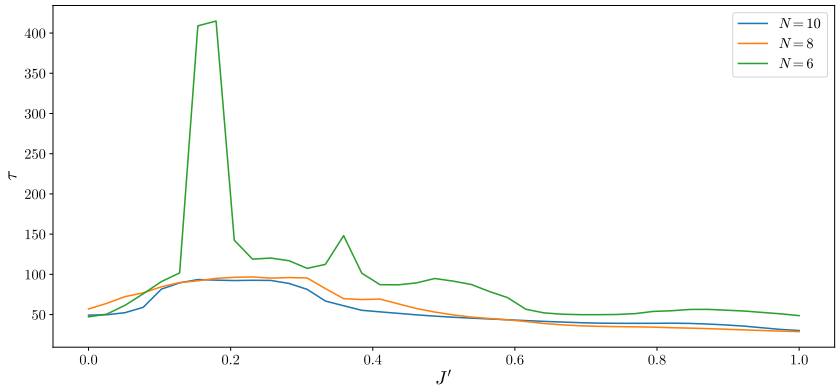

Figure 77: $J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 realizations, PBC.

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

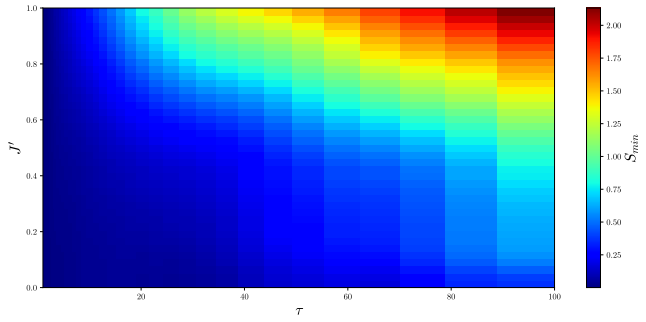

Figure 78: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

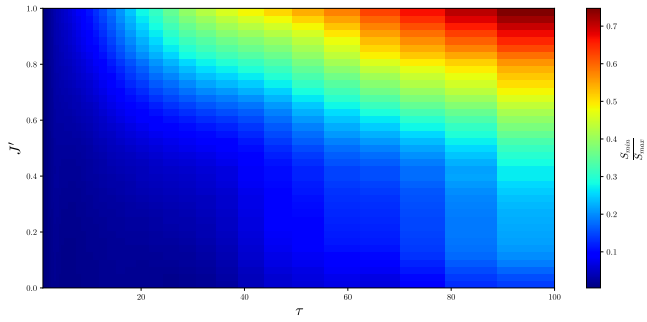

Figure 79: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

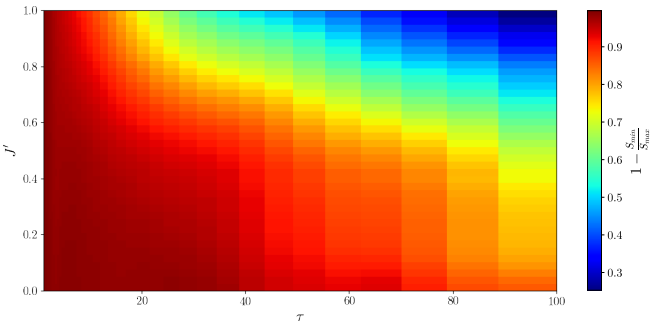

Figure 80: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

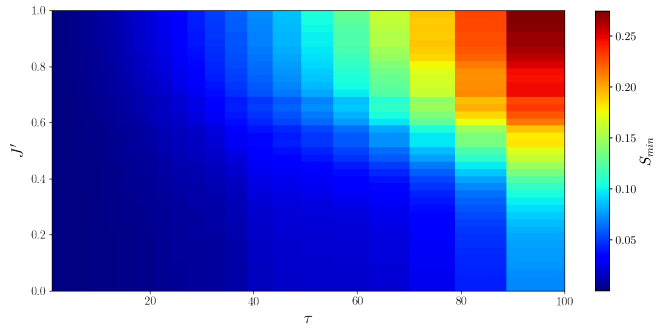

Figure 81: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

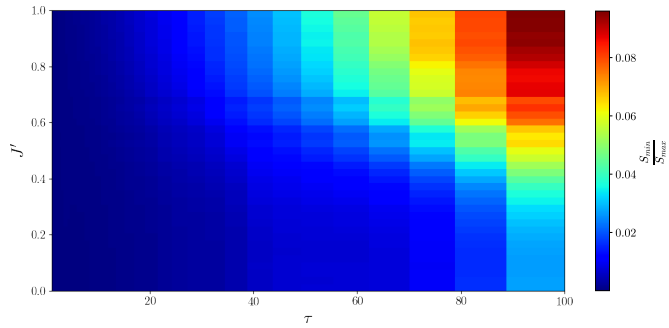

Figure 82: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

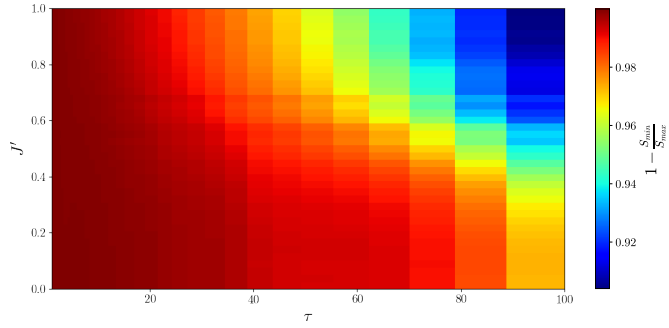

Figure 83: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

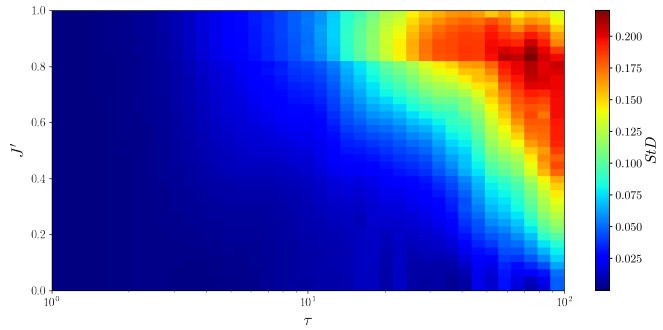

Figure 84: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

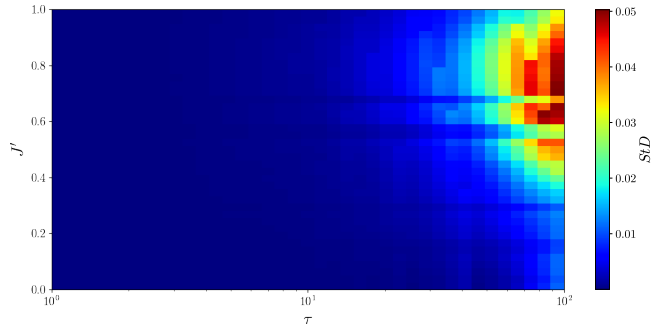

Figure 85: $N = 10, J = 1, h = 1, \delta h = 0.01$ over 100 initial random state, PBC.

2.8 Standard deviation vs time

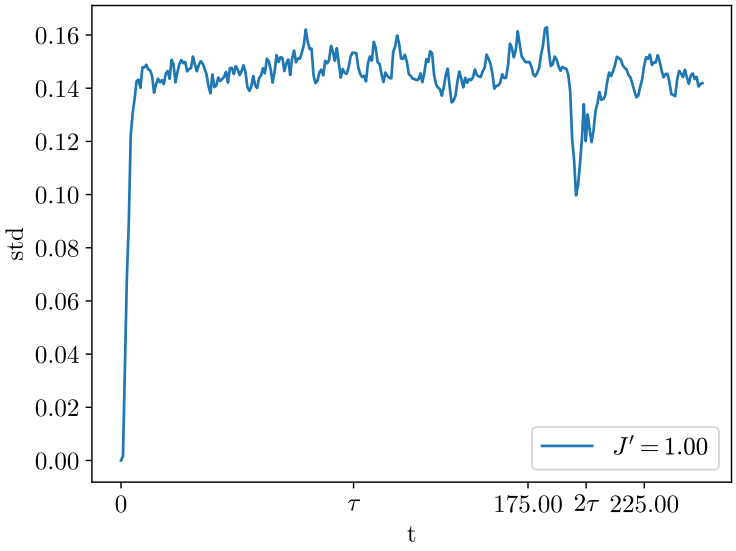

Figure 86: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

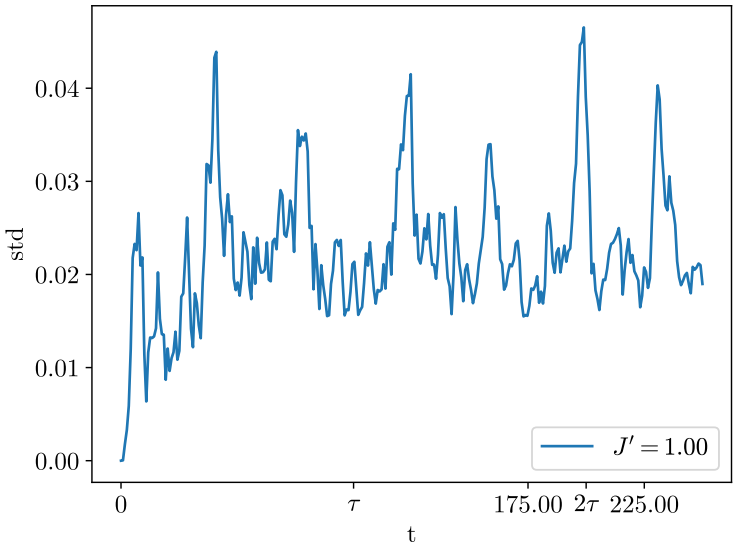

Figure 87: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 initial random state, PBC.

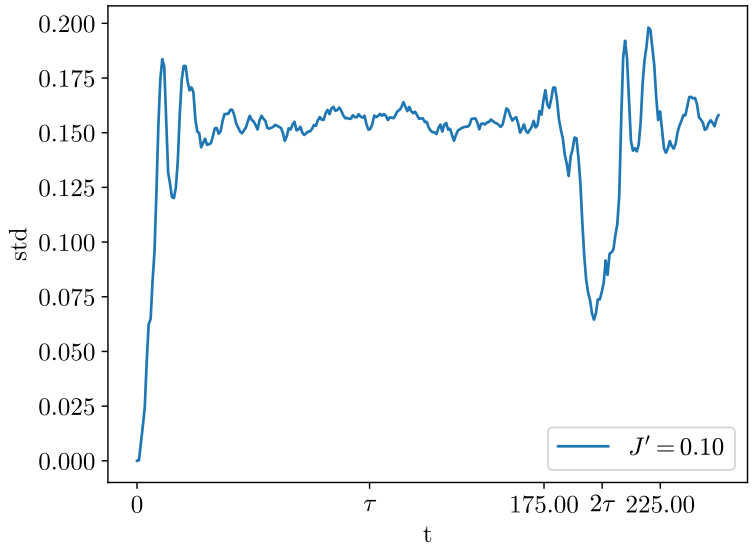

Figure 88: $N = 10, J = 1, h = 1, \delta h = 0.1$ over 100 initial random state, PBC.

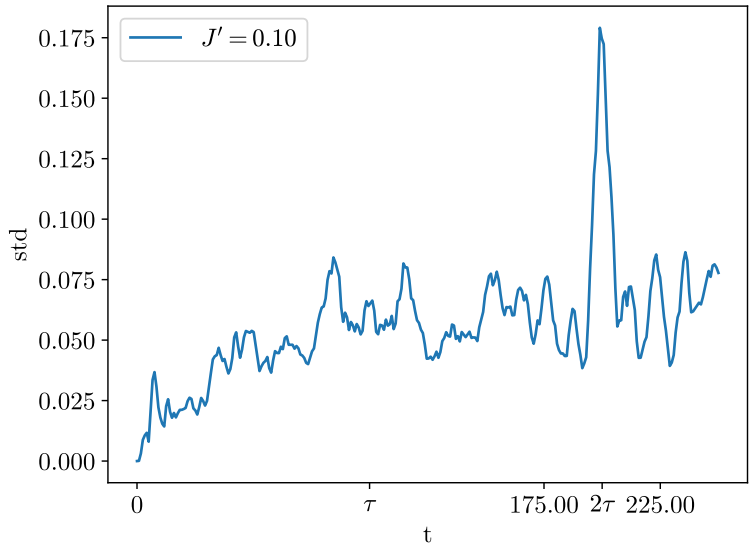

Figure 89: $N = 10, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 100 initial random state, PBC.

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

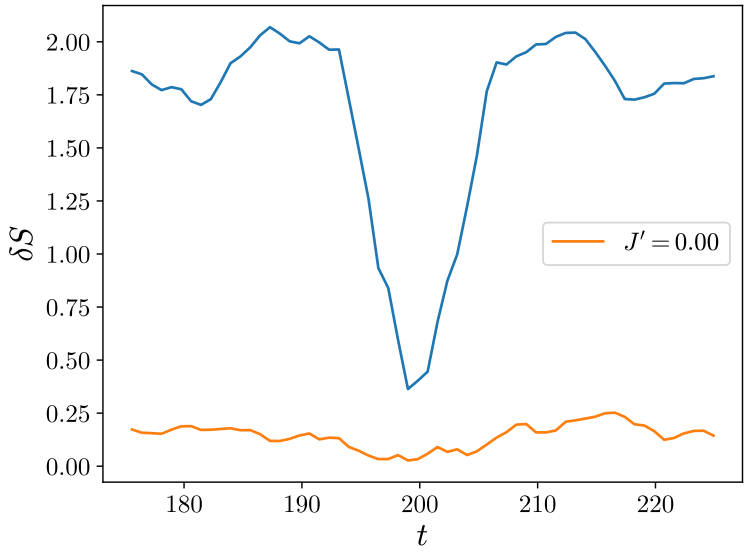

Figure 90: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

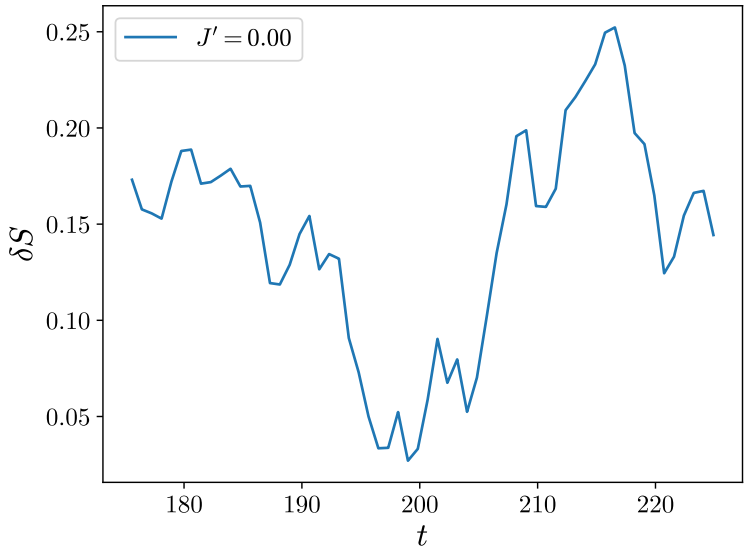

Figure 91: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

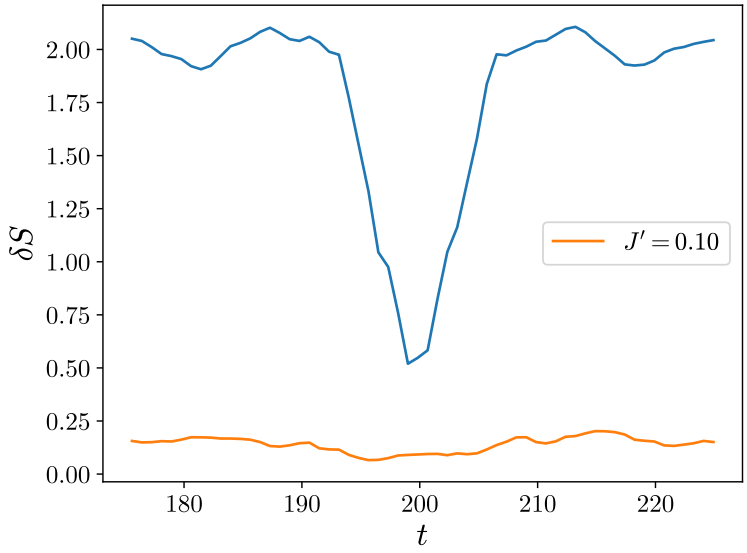

Figure 92: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

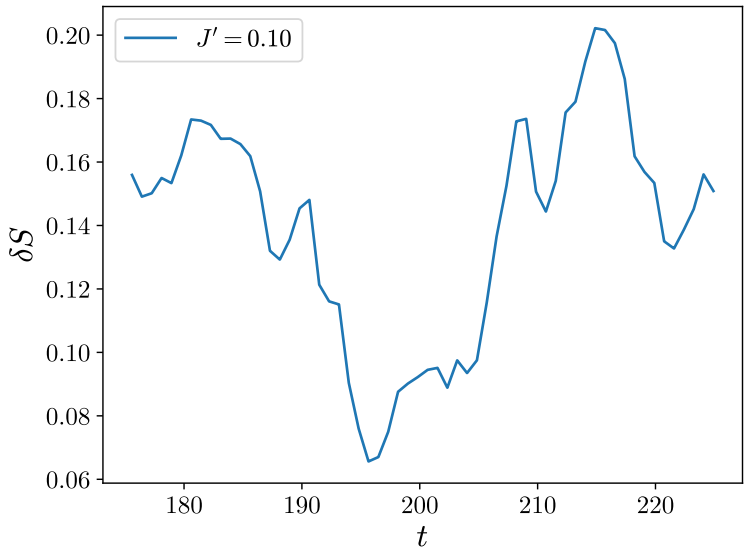

Figure 93: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

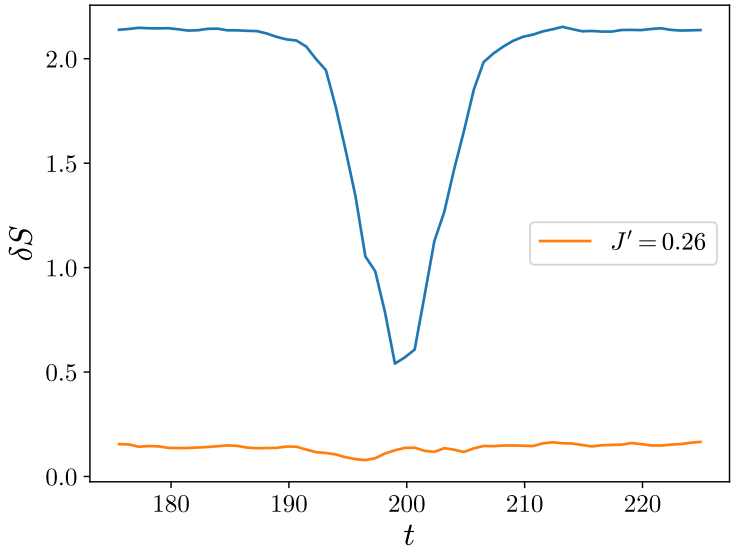

Figure 94: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

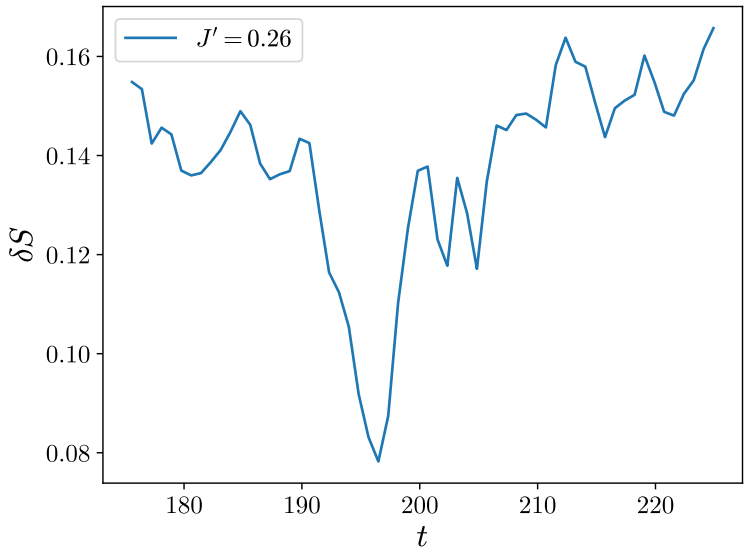

Figure 95: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

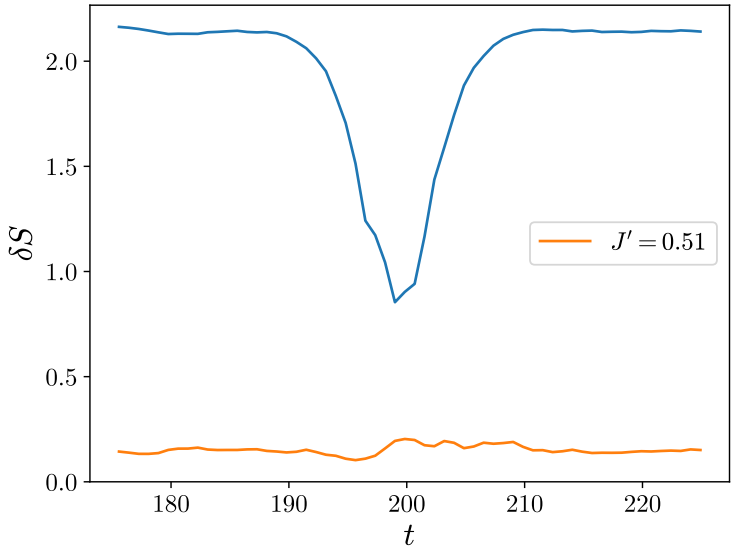

Figure 96: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

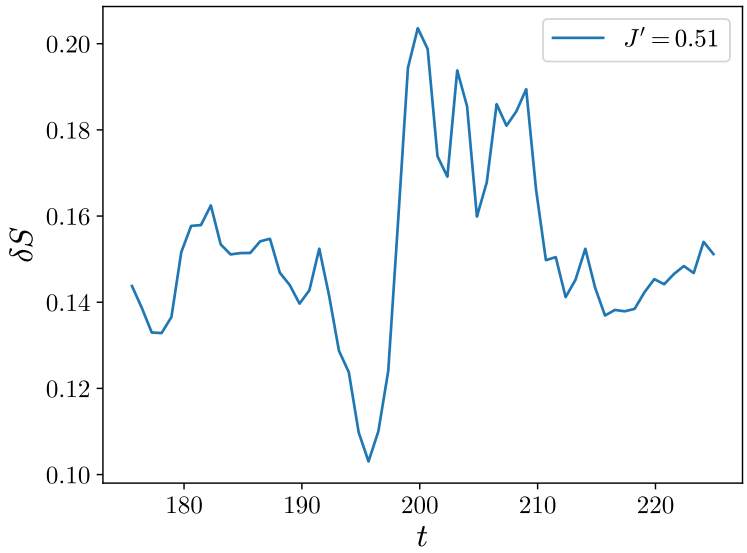

Figure 97: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

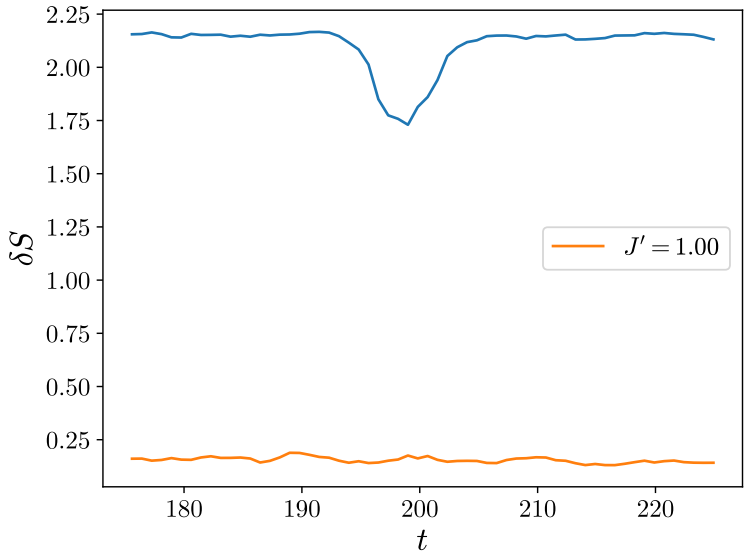

Figure 98: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

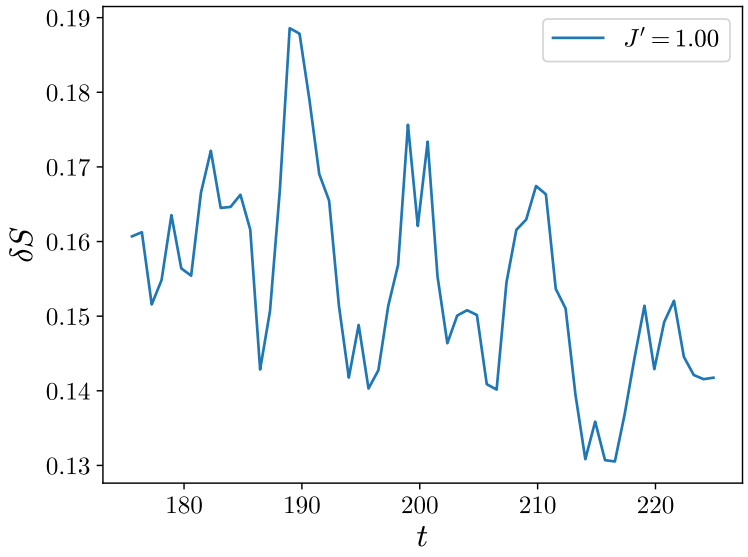

Figure 99: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

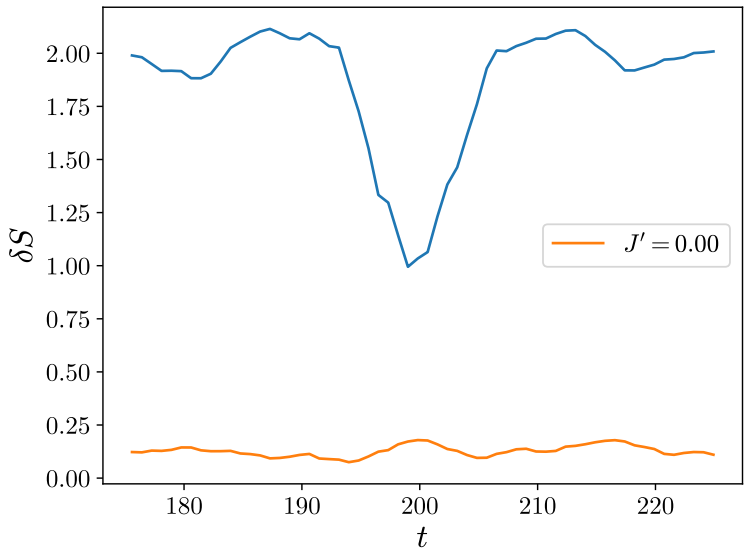

Figure 100: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

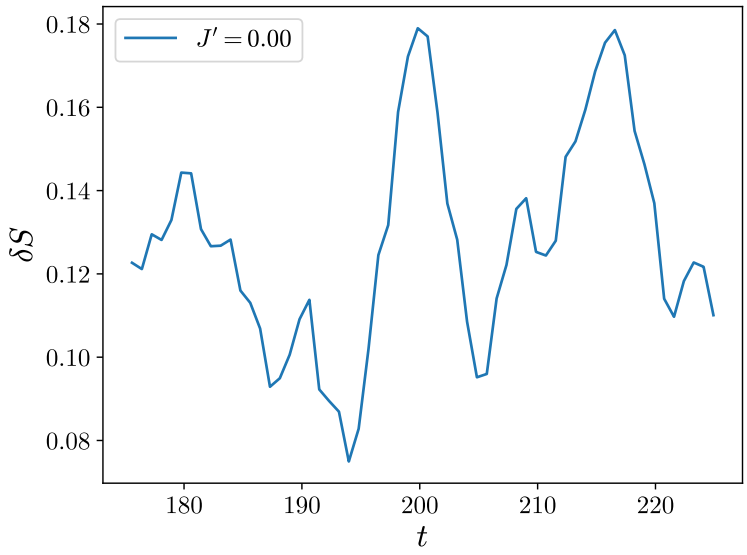

Figure 101: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

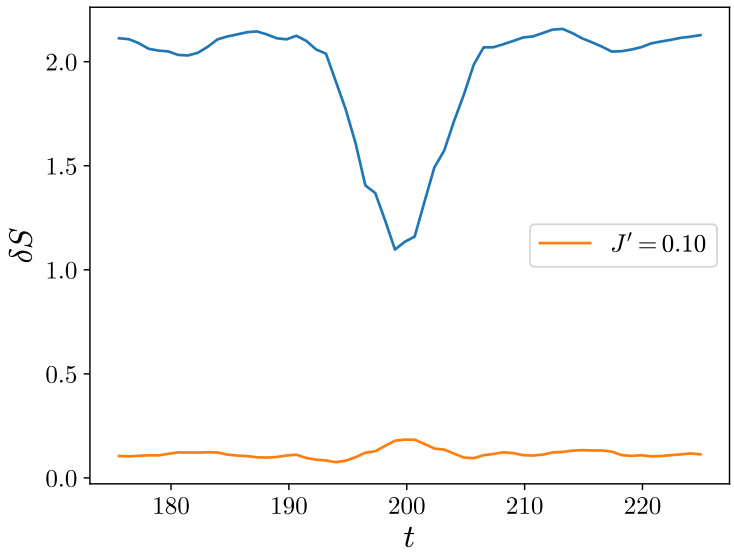

Figure 102: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

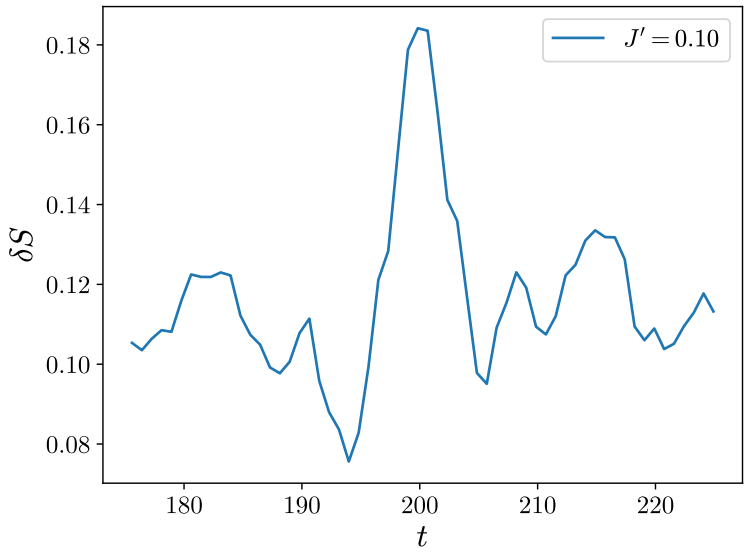

Figure 103: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

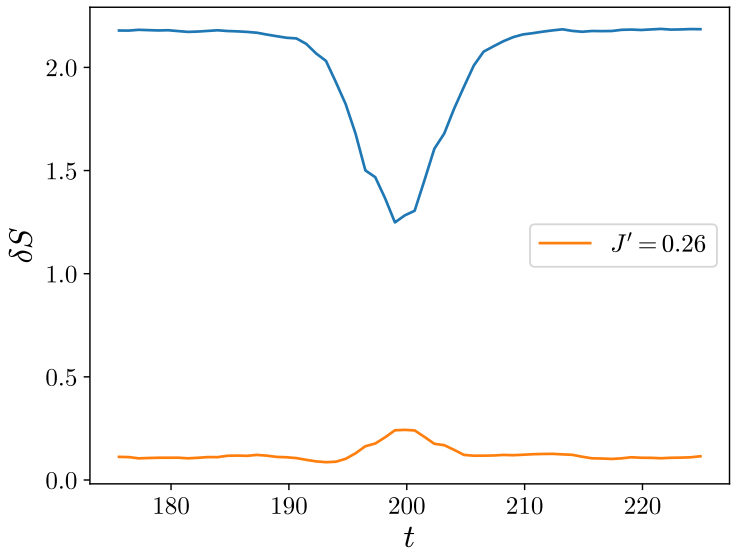

Figure 104: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

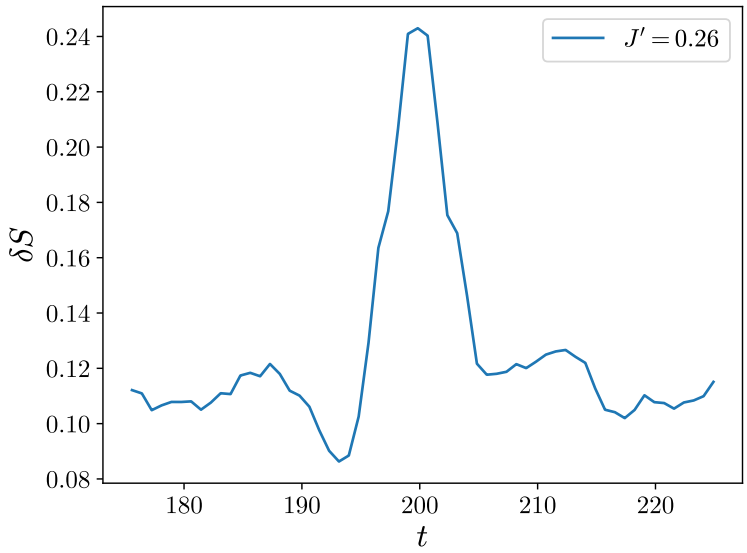

Figure 105: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

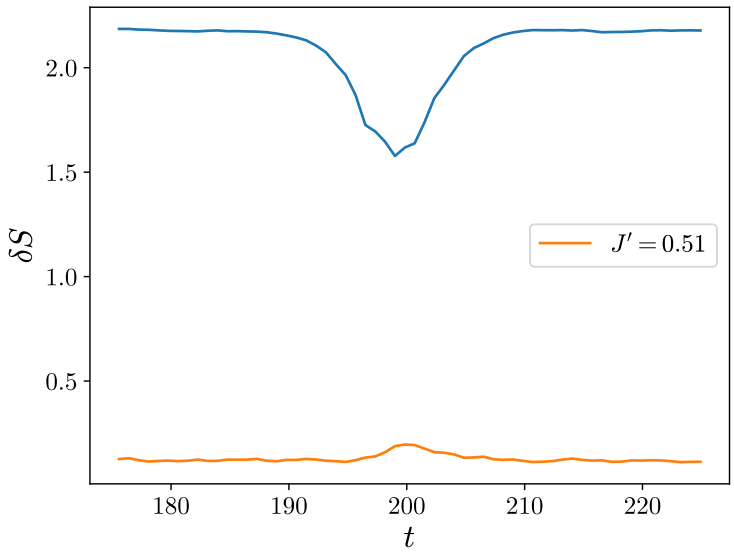

Figure 106: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

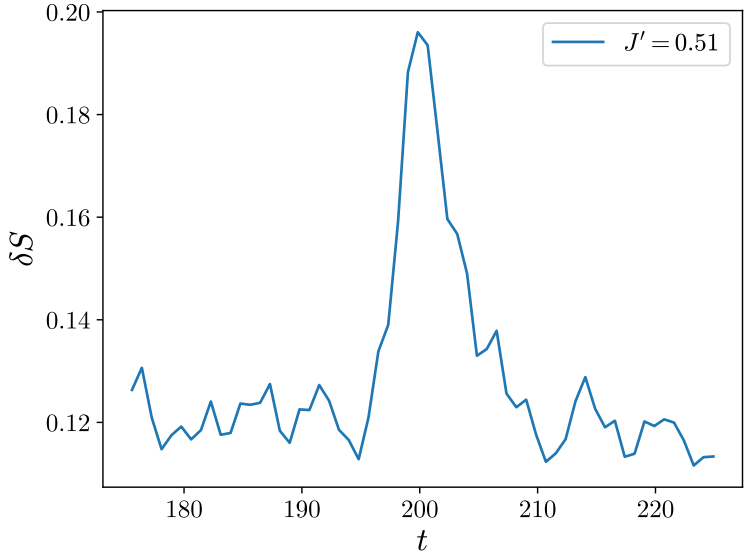

Figure 107: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

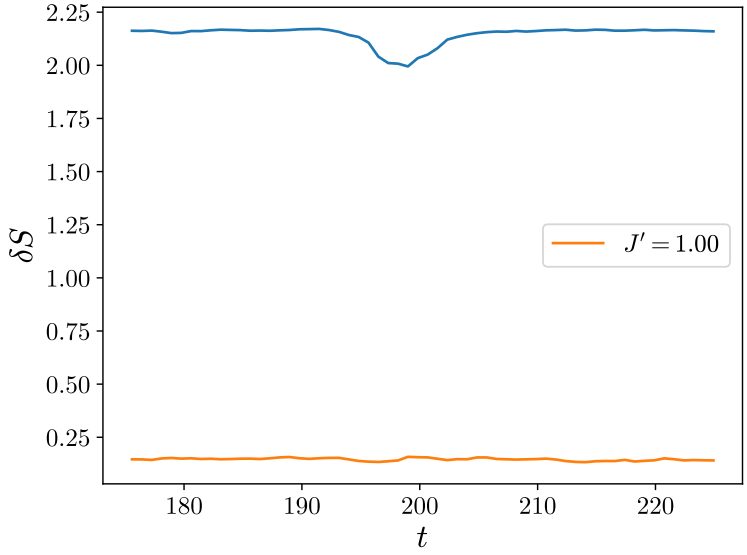

Figure 108: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

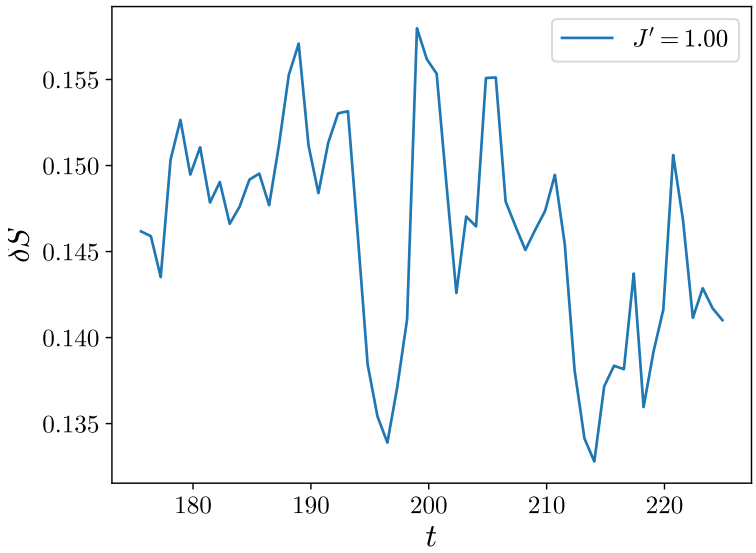

Figure 109: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.10 Standard deviation of mean at 2τ vs τ

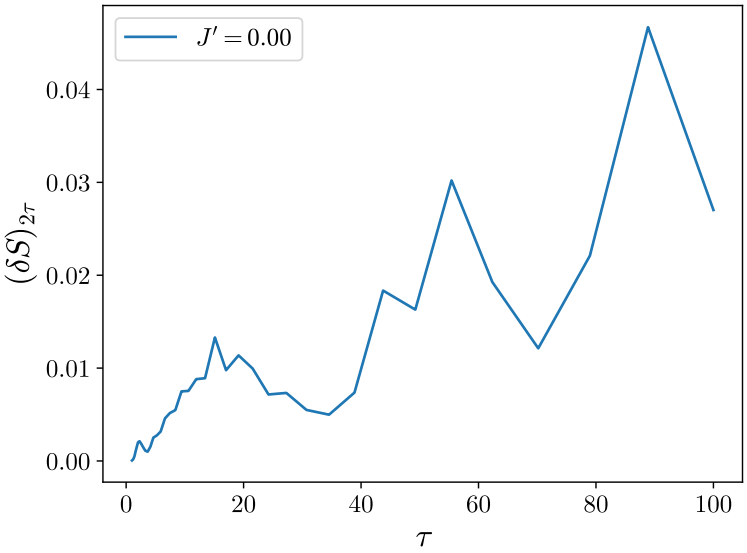

Figure 110: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

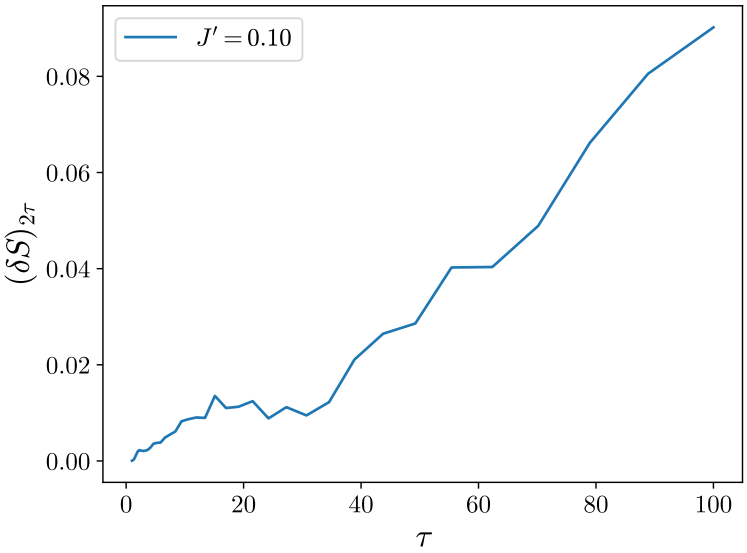

Figure 111: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

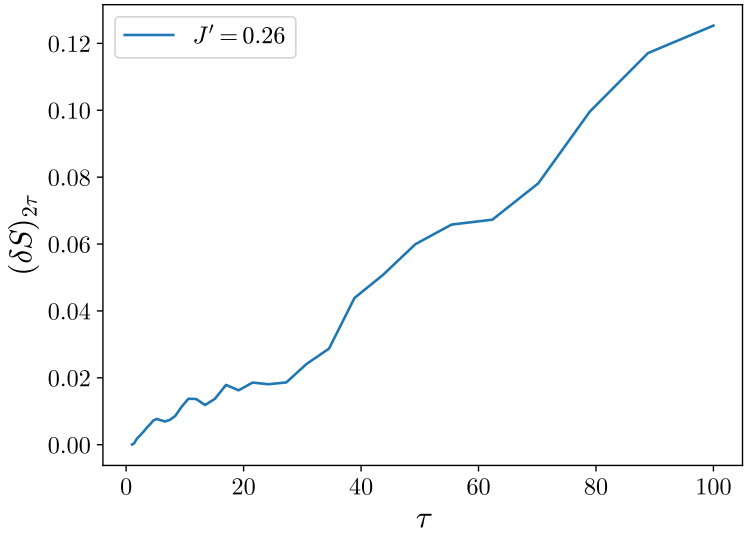

Figure 112: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

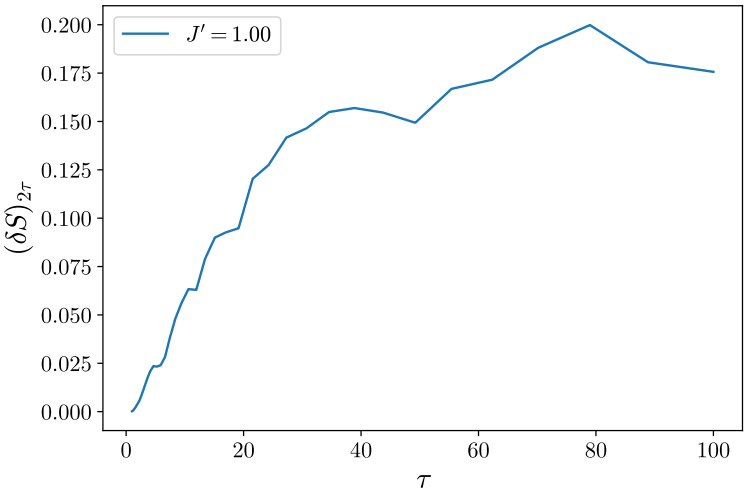

Figure 113: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

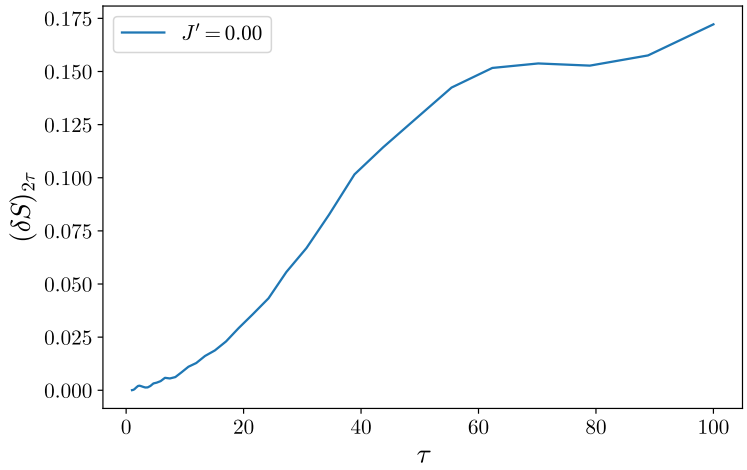

Figure 114: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

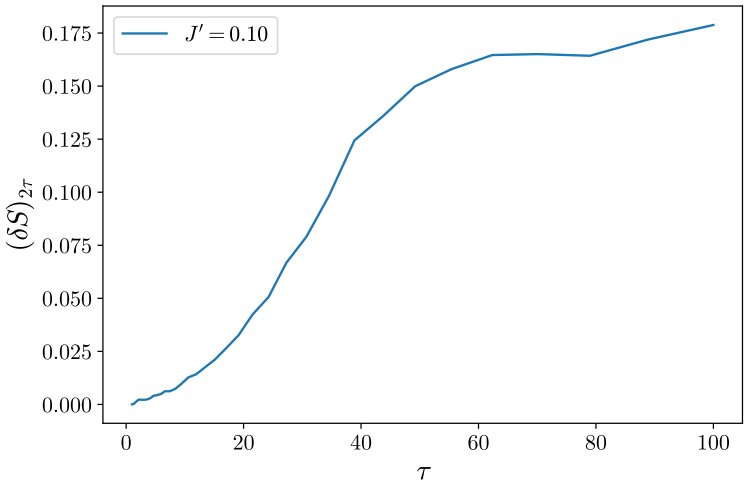

Figure 115: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

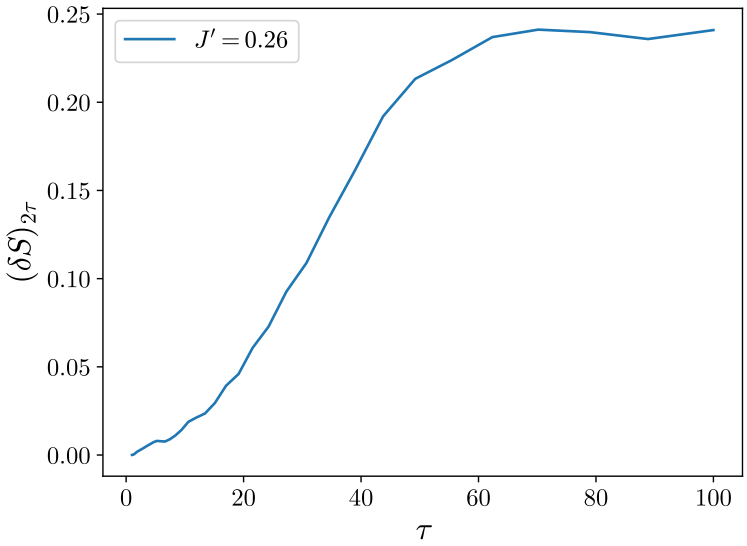

Figure 116: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

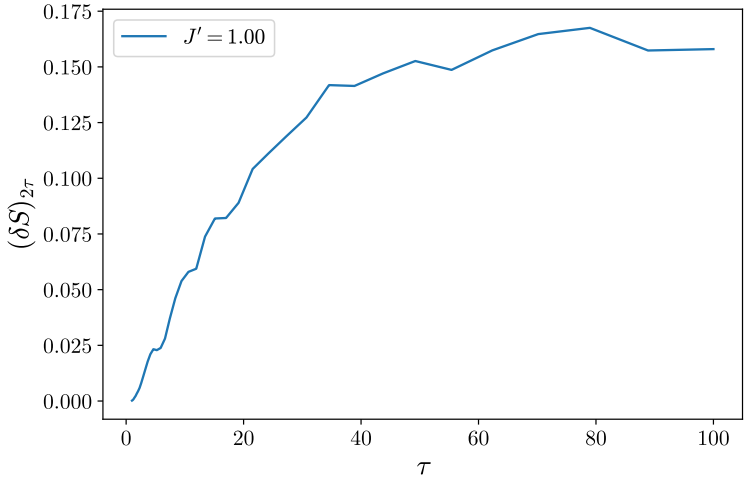

Figure 117: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11 Energy resolved analysis

2.11.1 Initial energy vs δE

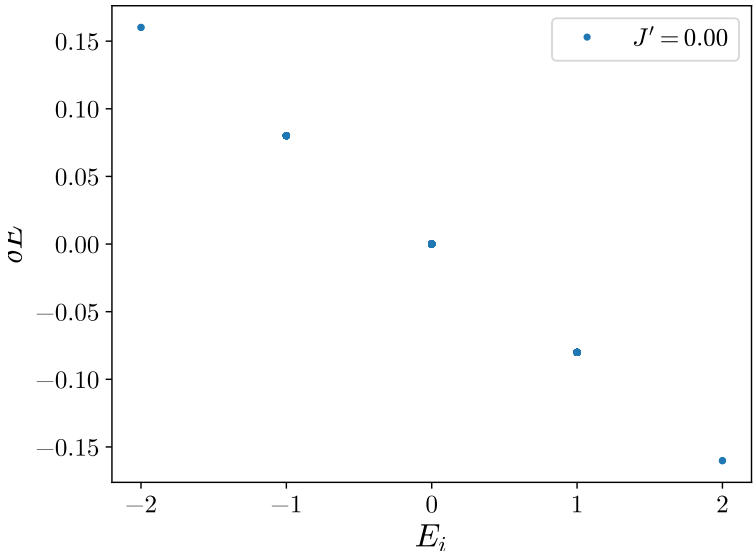

Figure 118: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

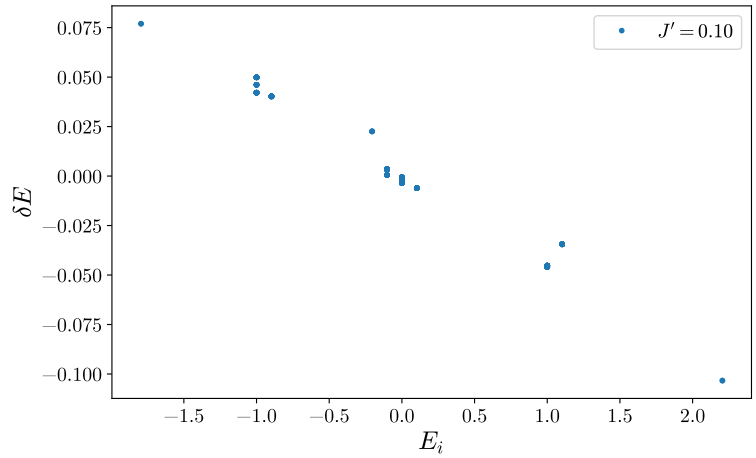

Figure 119: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

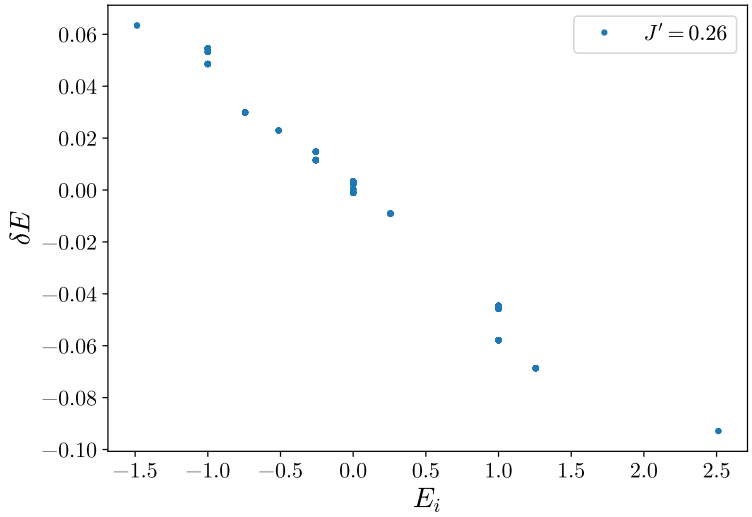

Figure 120: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

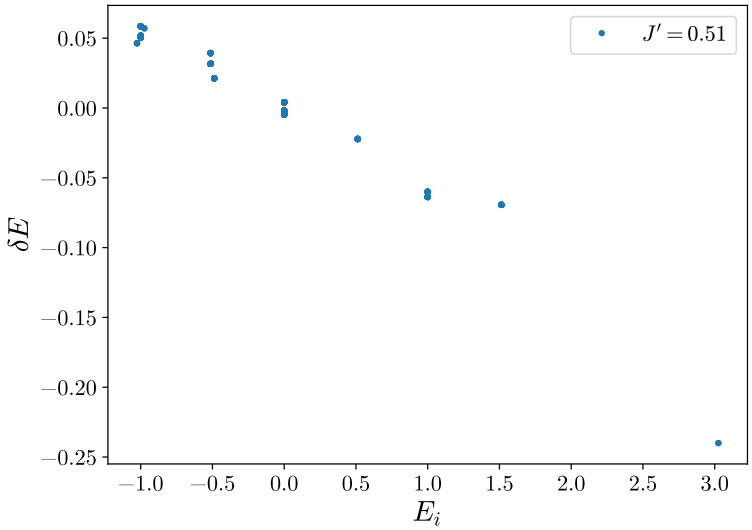

Figure 121: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

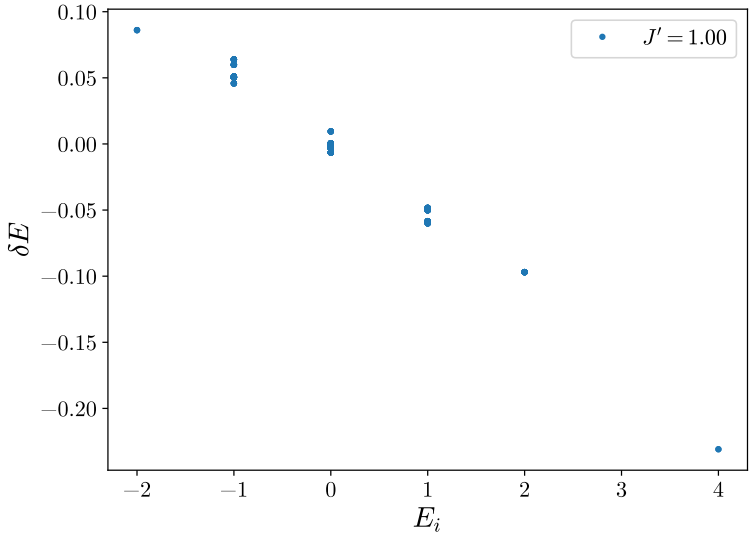

Figure 122: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

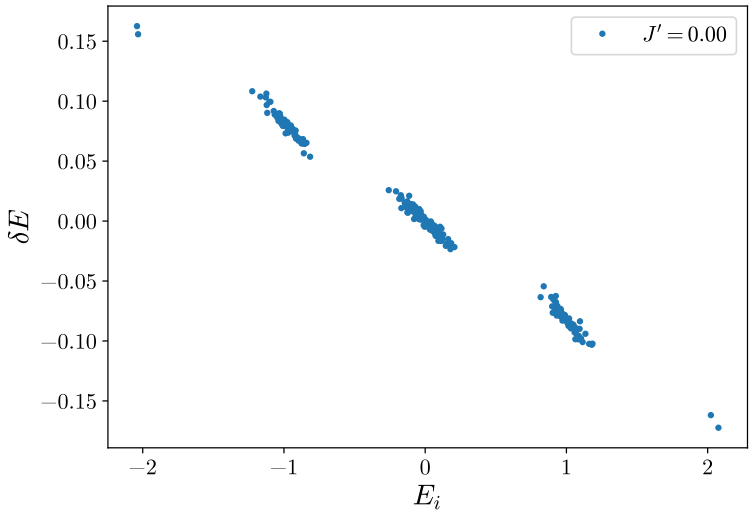

Figure 123: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

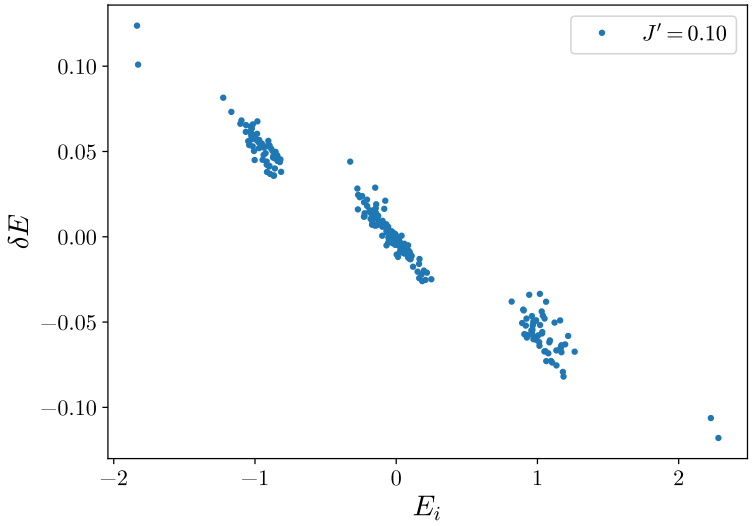

Figure 124: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

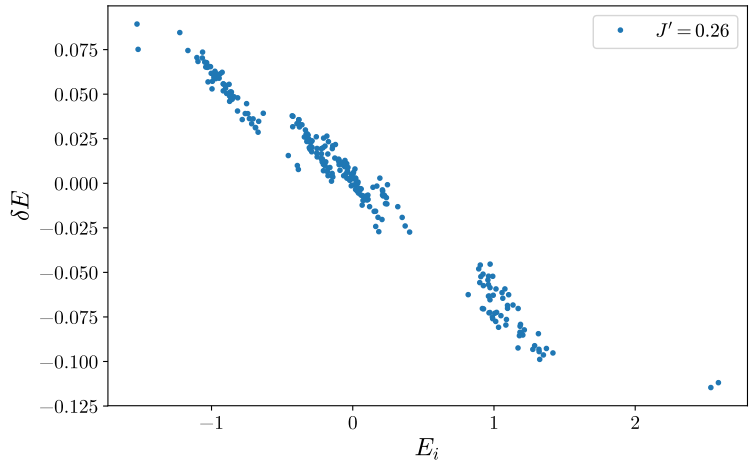

Figure 125: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

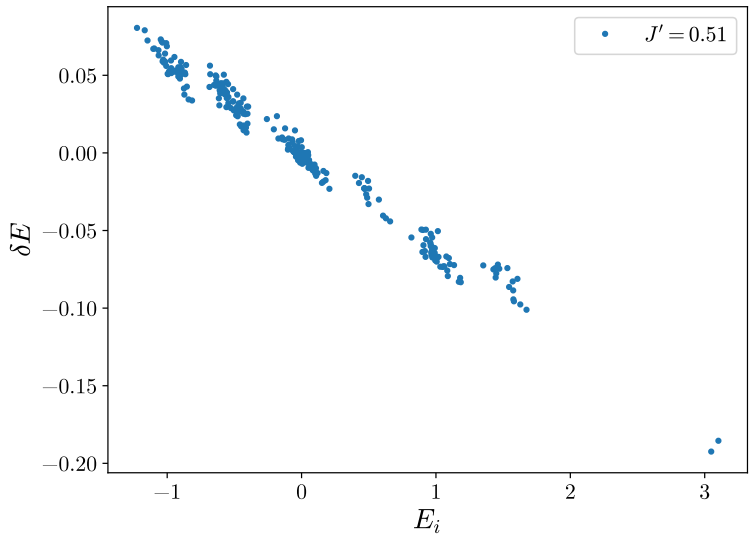

Figure 126: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

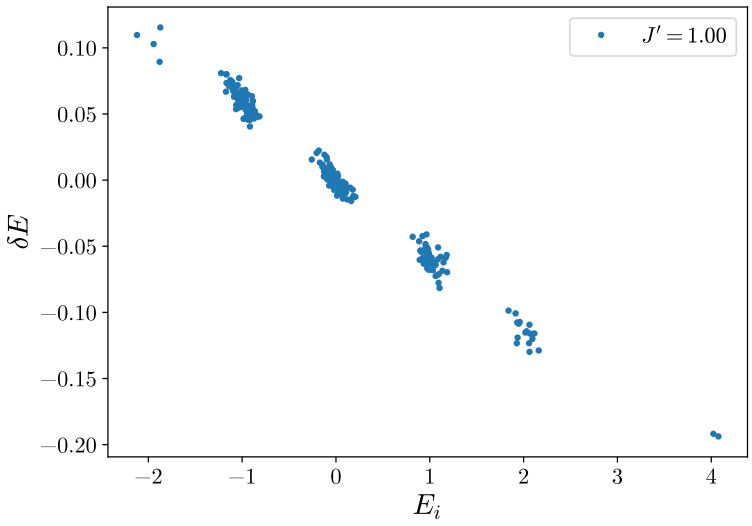

Figure 127: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11.2 Initial energy vs samples

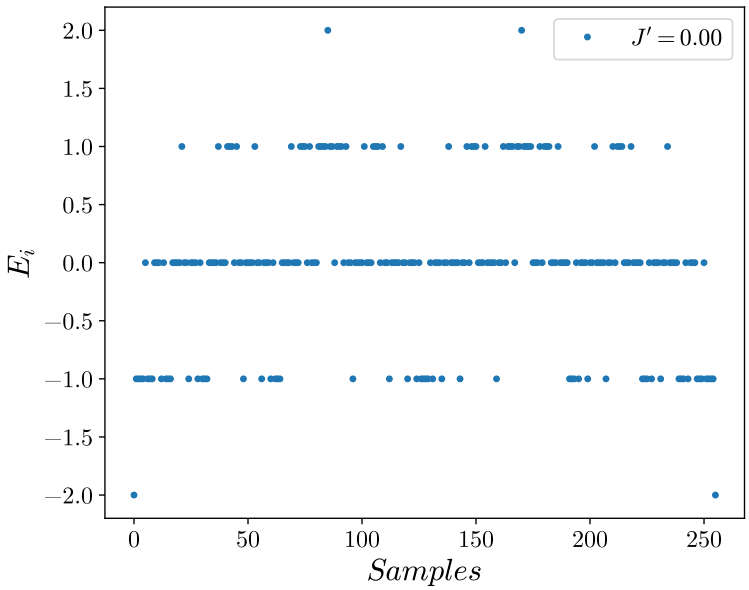

Figure 128: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

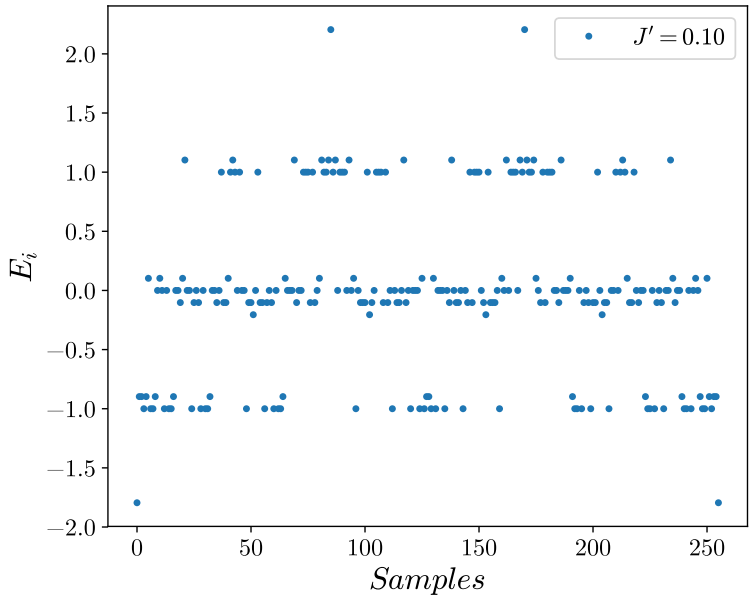

Figure 129: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

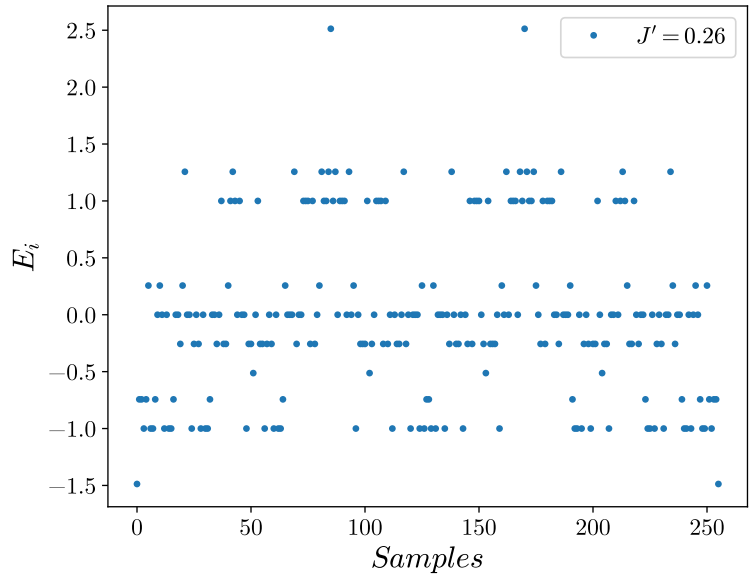

Figure 130: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

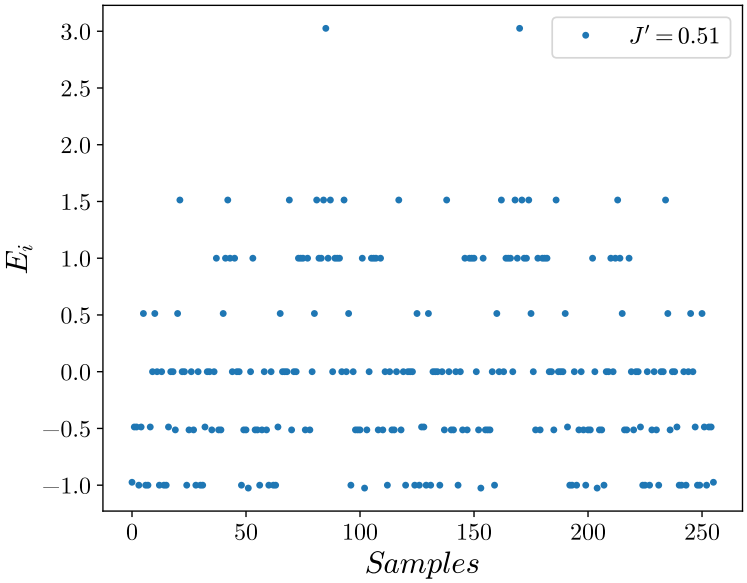

Figure 131: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

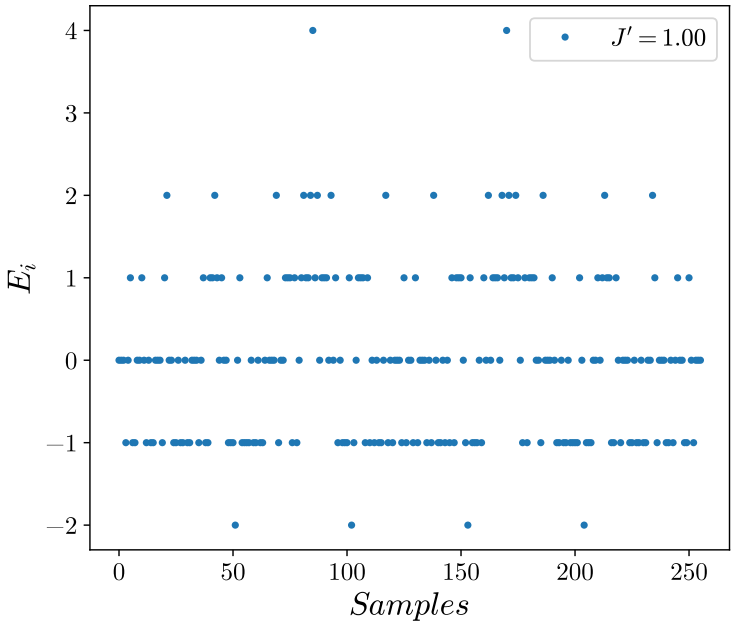

Figure 132: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

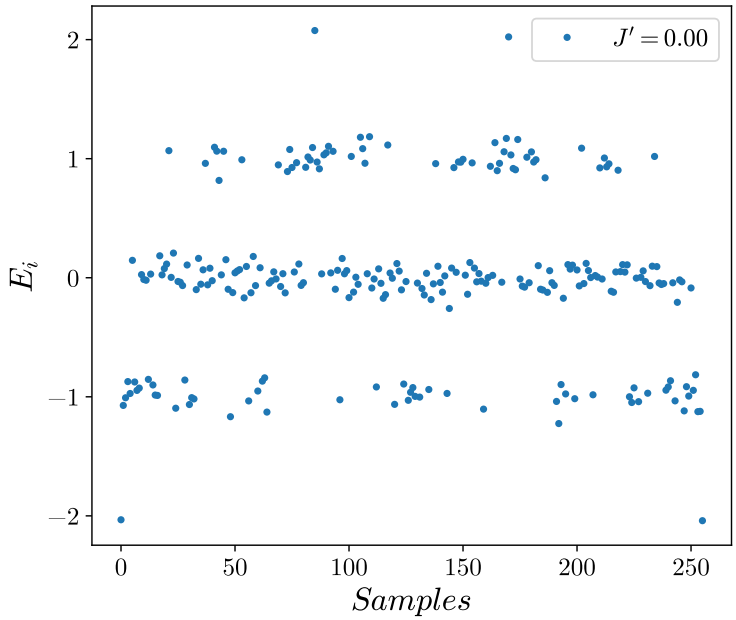

Figure 133: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

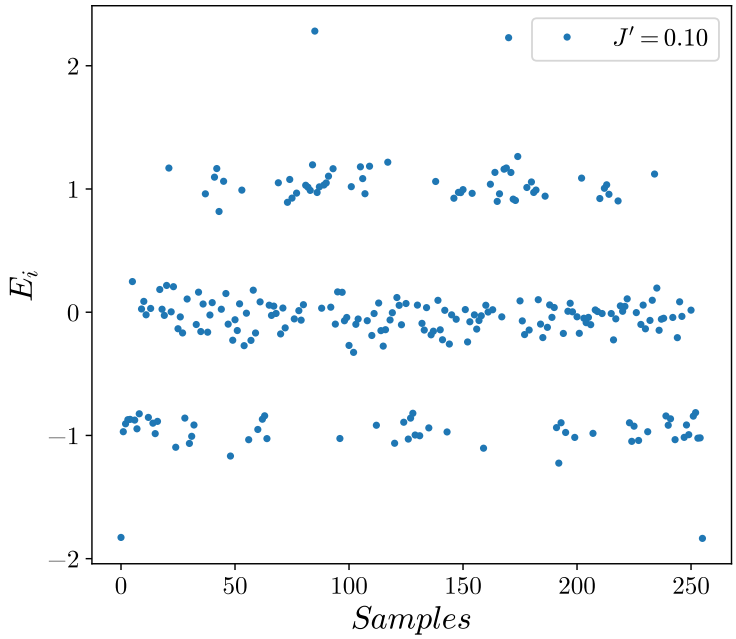

Figure 134: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

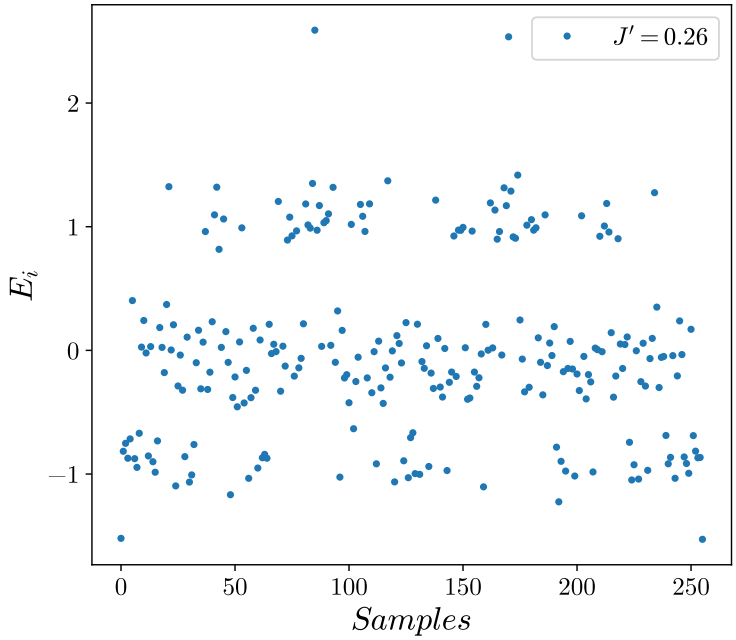

Figure 135: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

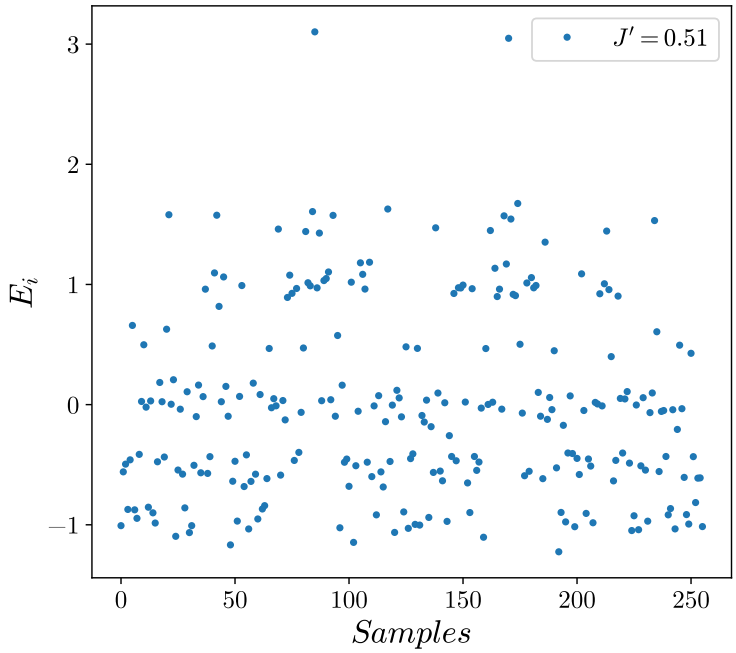

Figure 136: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

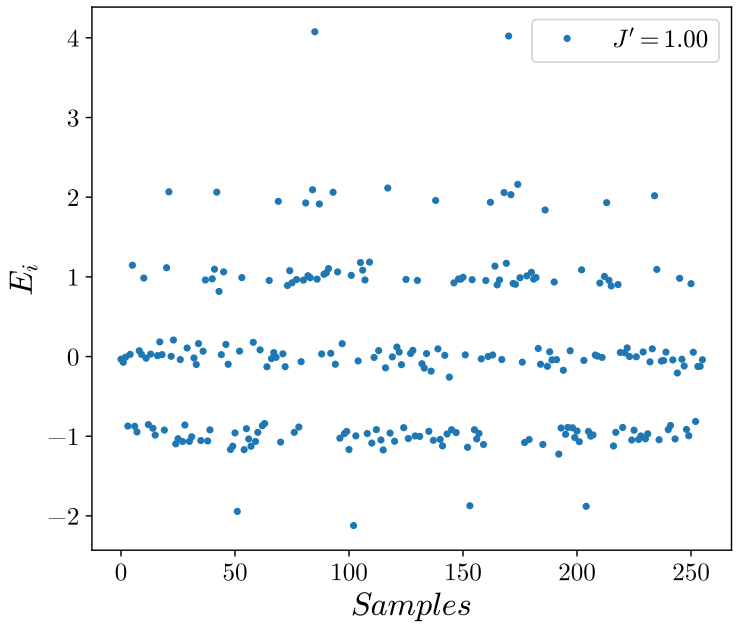

Figure 137: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

2.11.3 S_{min} vs δE

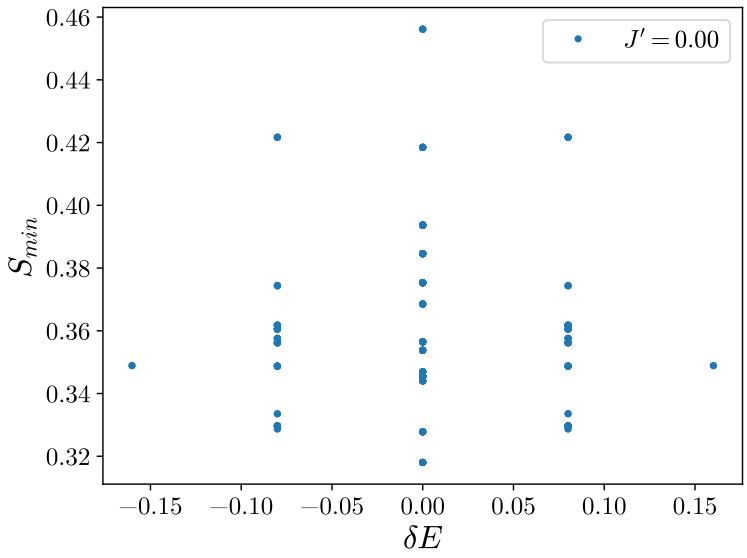

Figure 138: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

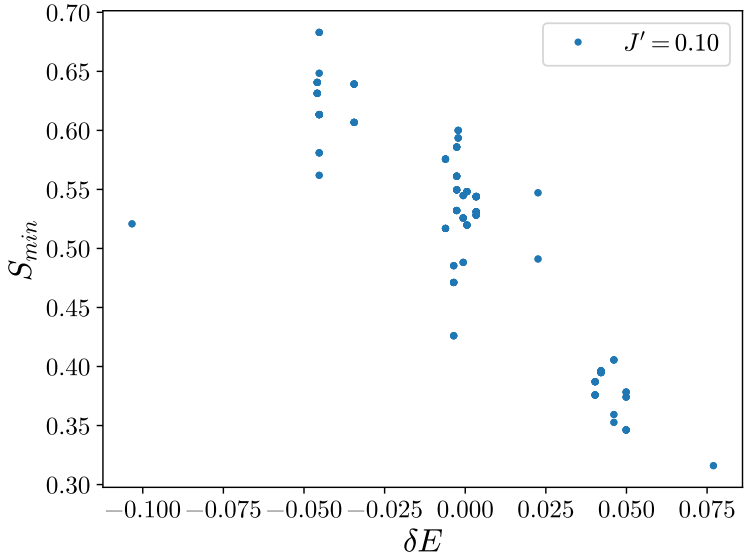

Figure 139: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

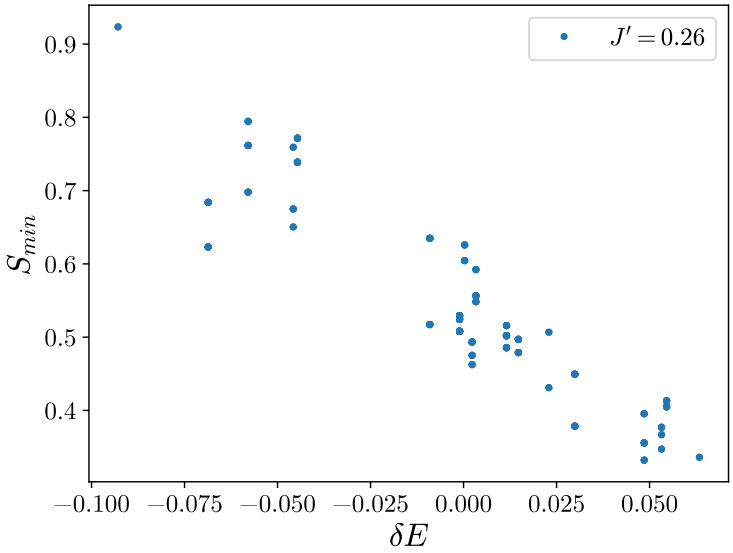

Figure 140: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

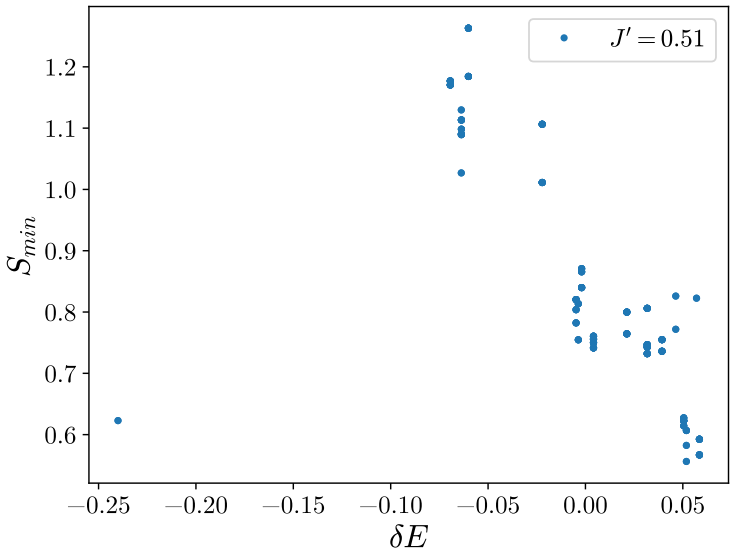

Figure 141: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

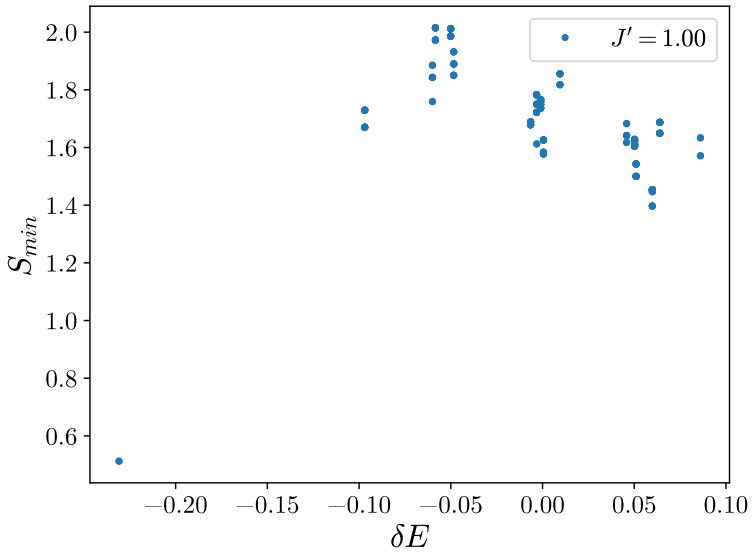

Figure 142: $N = 8, J = 1, h = 1, \delta h = 0.1$ over 256 sample states.

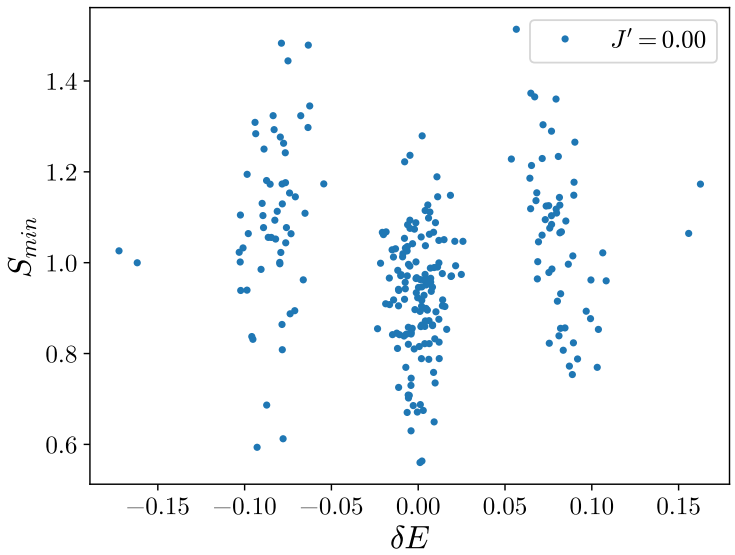

Figure 143: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

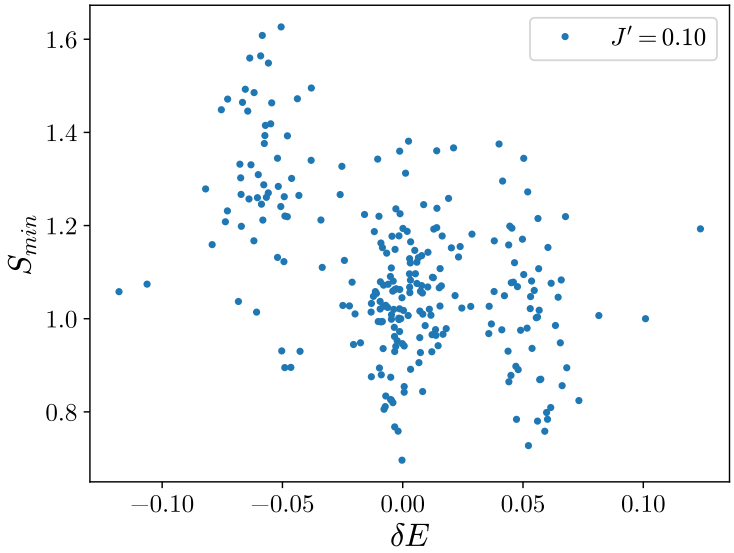

Figure 144: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

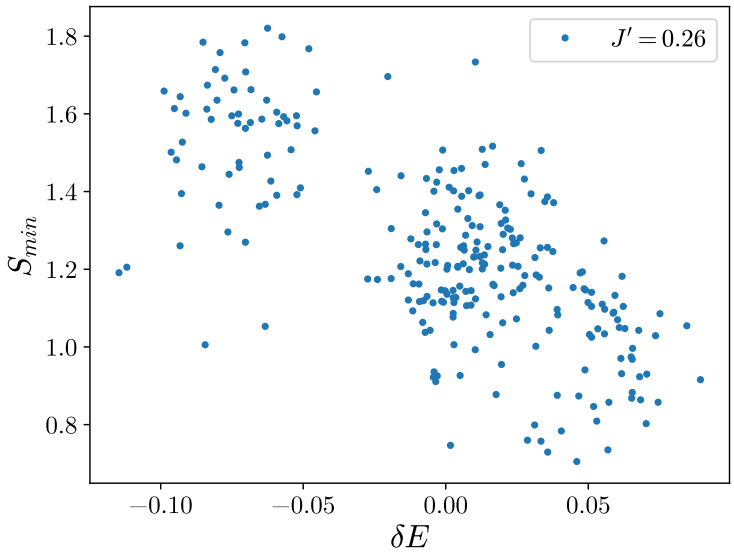

Figure 145: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

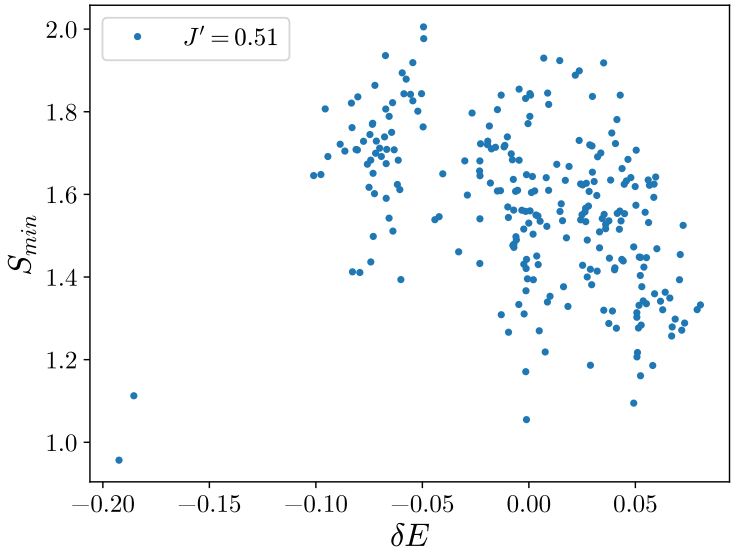

Figure 146: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

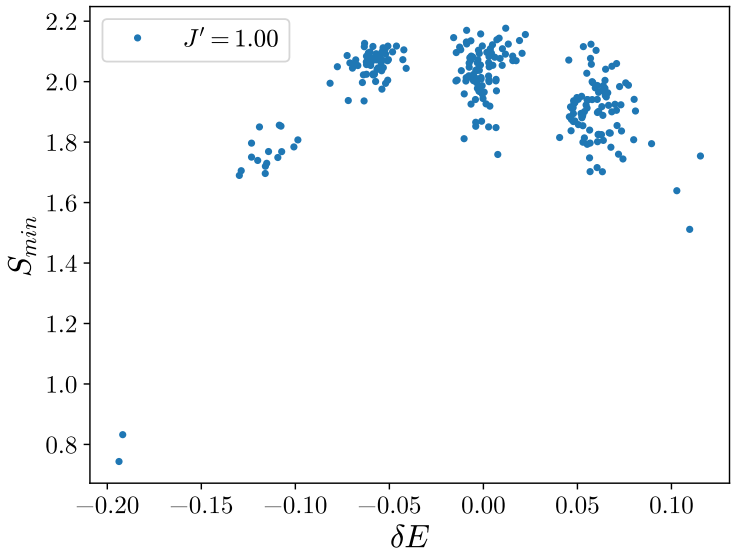

Figure 147: $N = 8, J = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-0.1, 0.1]$ over 256 sample states.

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

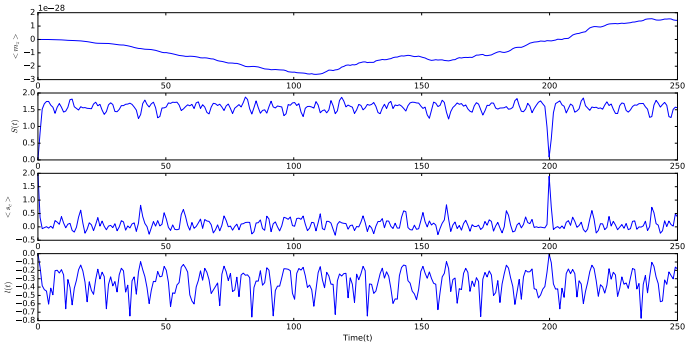

Figure 148: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ with disorder parameter h_v varying from $[-1, 1]$.

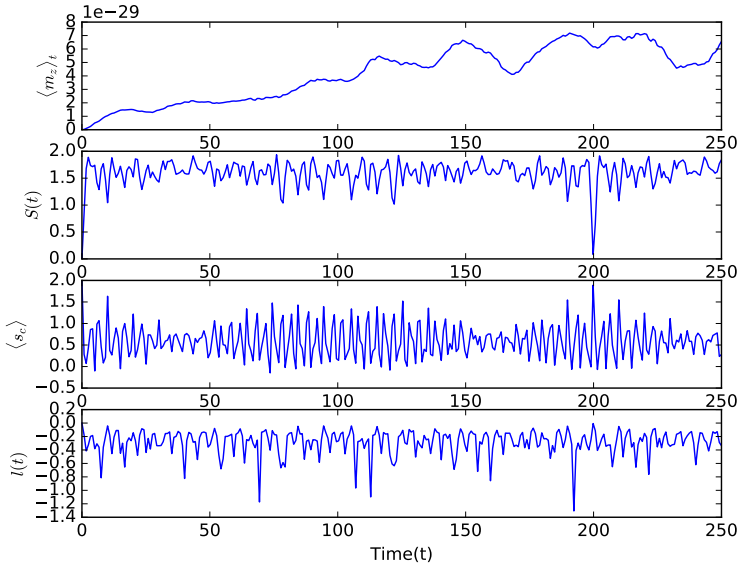

Figure 149: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ without disorder.

3.1.2 Averaged over several runs

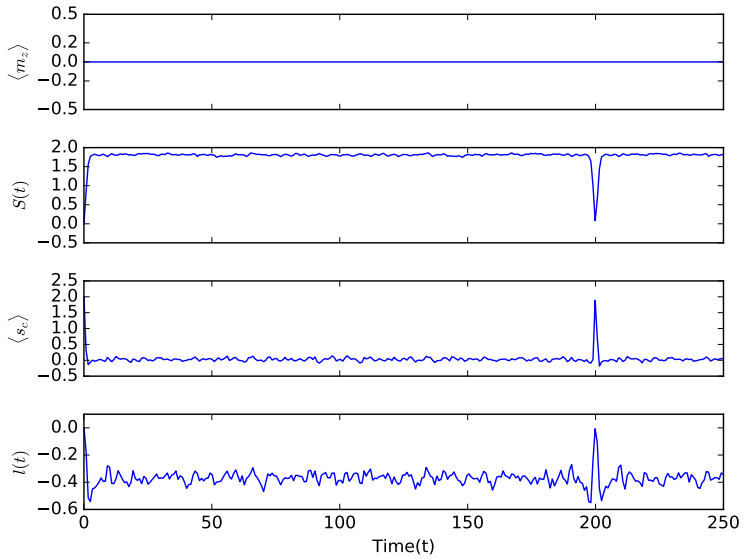

Figure 150: $N = 8, J = 1, \Delta = 1, h = 1, \delta h = 0.1$ with disorder h_v varying from $[-1, 1]$.

3.2 Energy resolved analysis

3.2.1 Initial energy vs δE

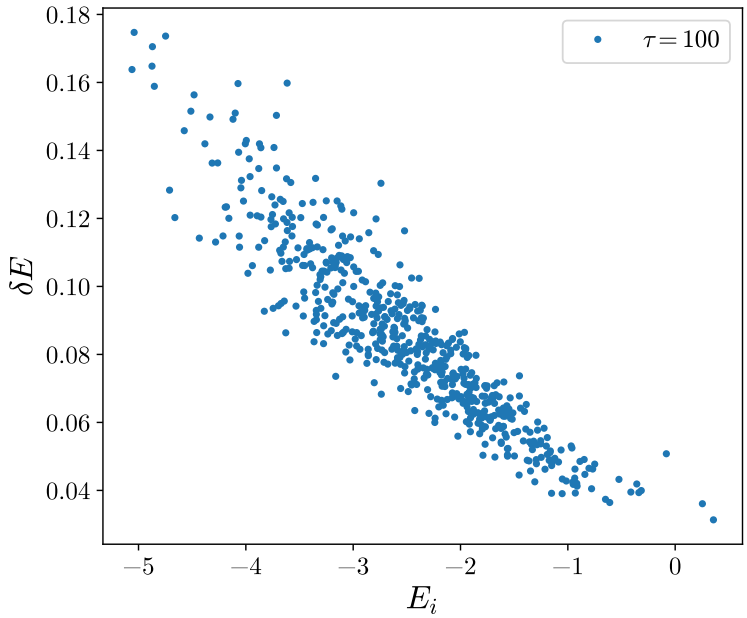

Figure 151: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

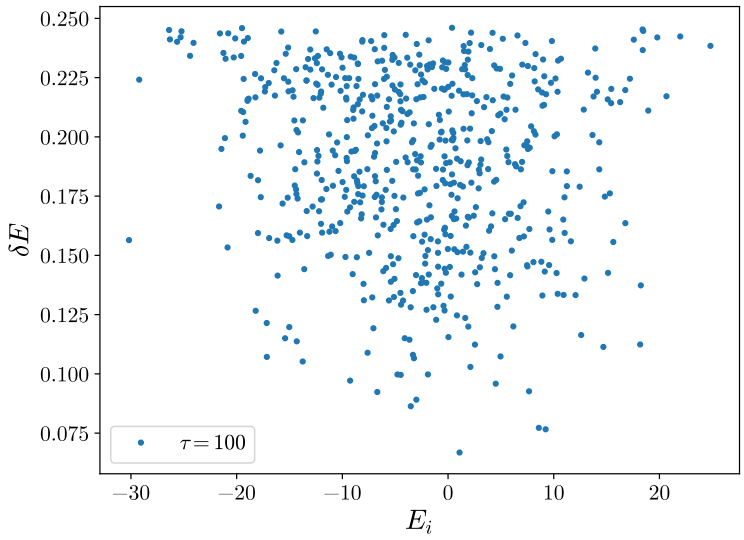

Figure 152: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.2.2 Initial energy vs samples

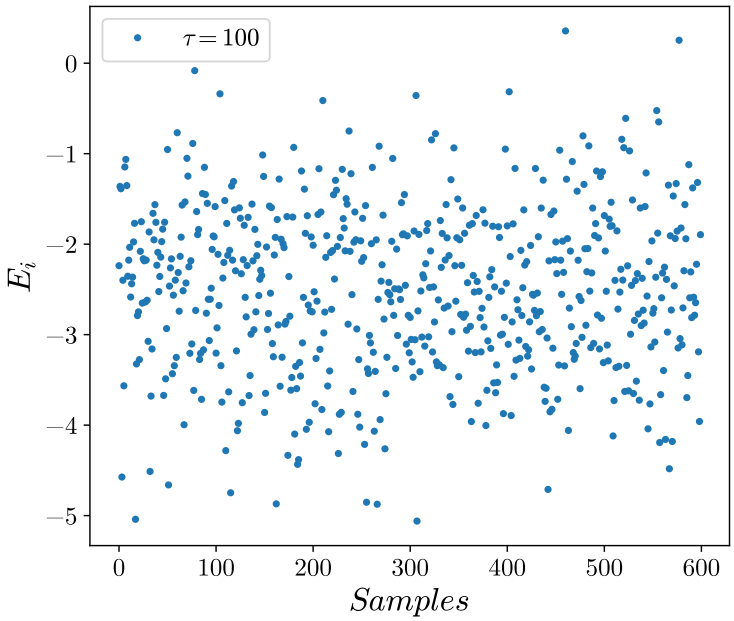

Figure 153: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

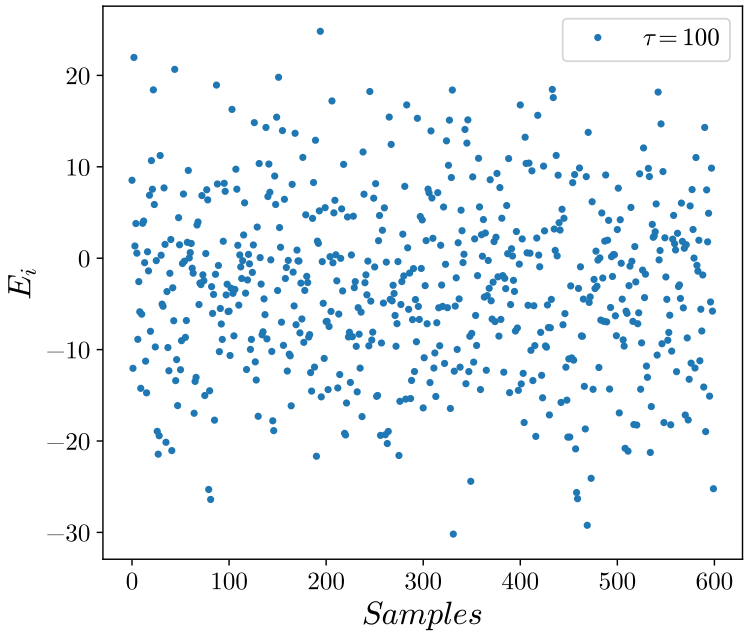

Figure 154: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.2.3 S_{min}/S_{max} vs δE

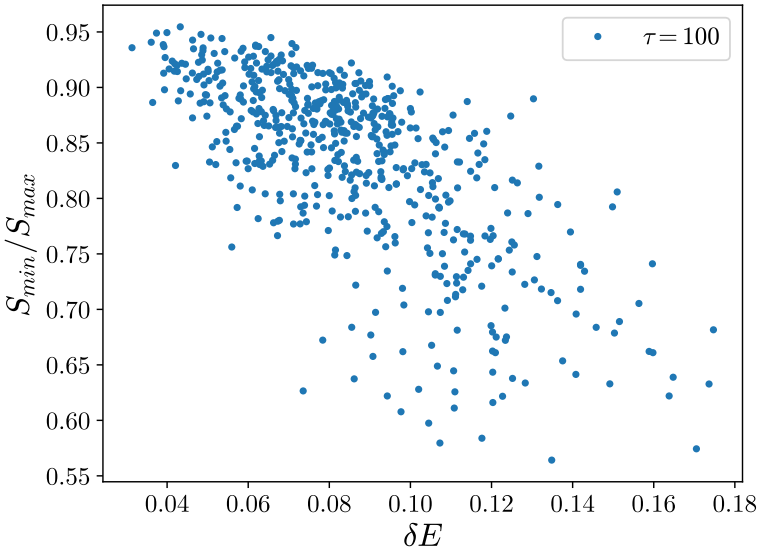

Figure 155: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

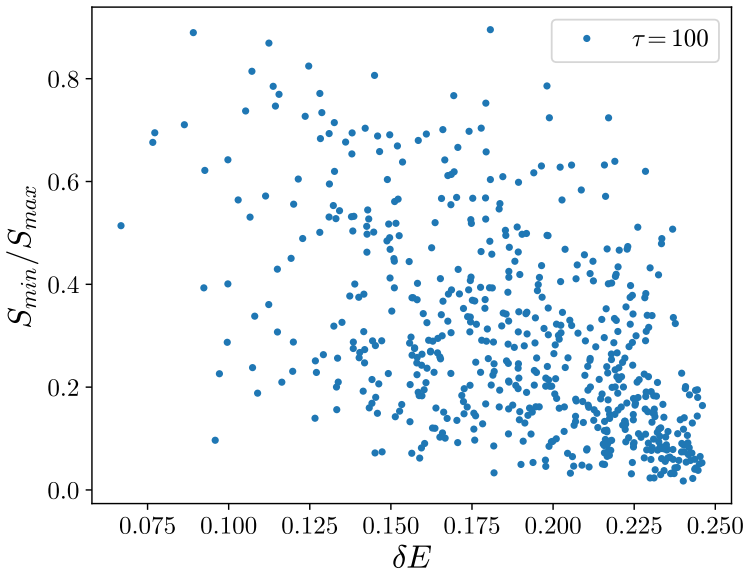

Figure 156: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.3 S δS vs t

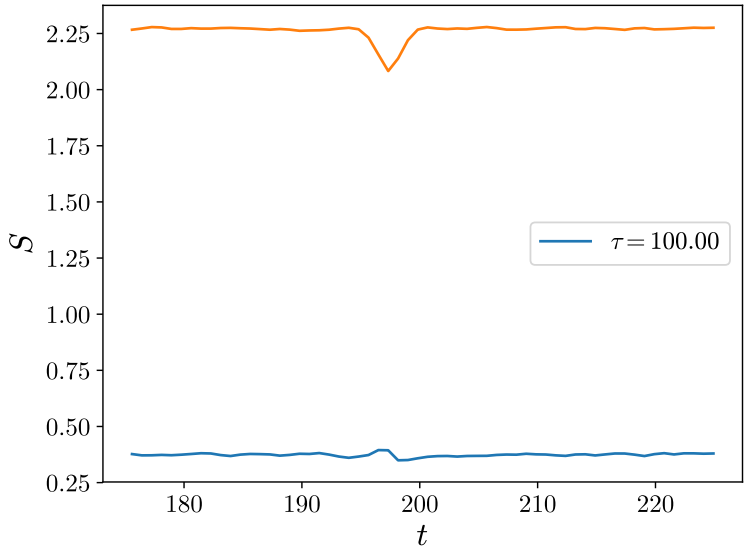

Figure 157: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

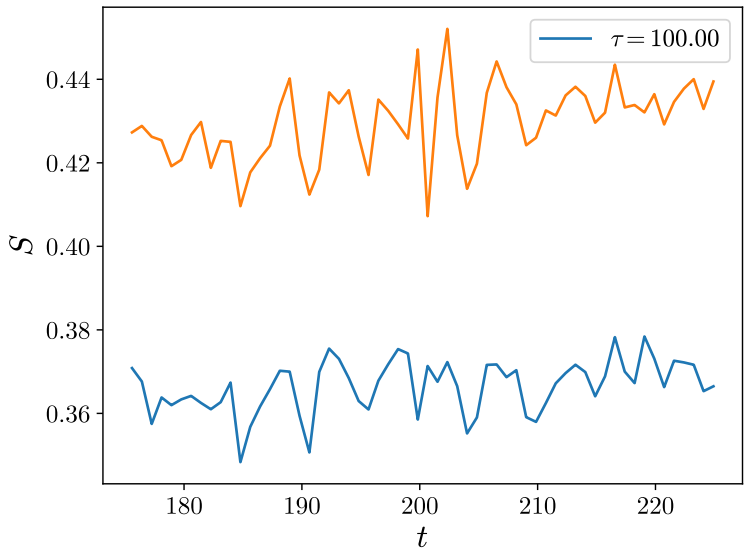

Figure 158: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.

3.4 S_{min}/S_{max} vs τ

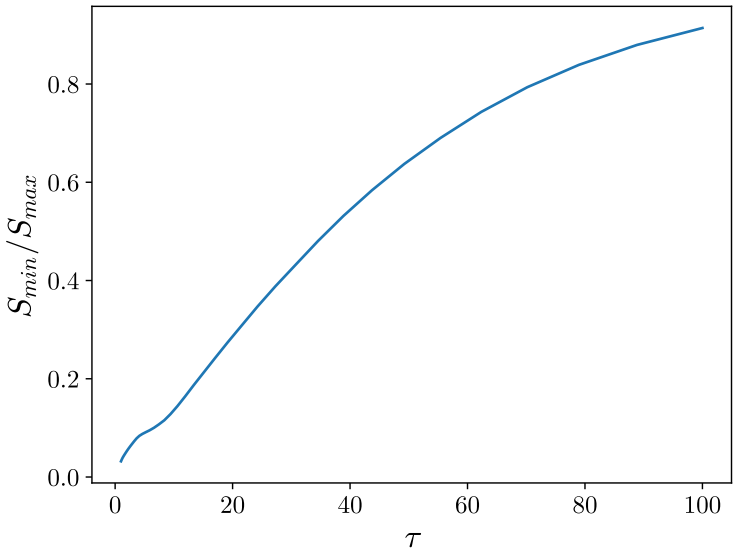

Figure 159: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-1, 1]$ over 600 disorder realization.

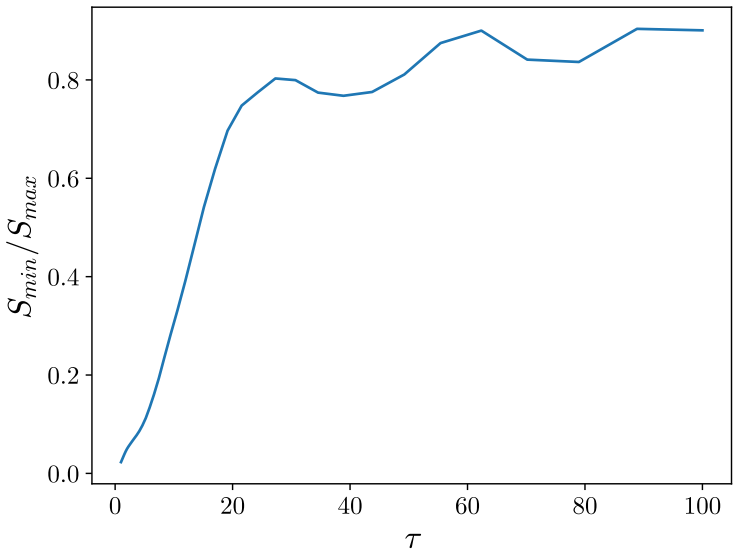

Figure 160: $N = 10, J = 1, \delta = 1, d\delta = 0.1$ with disorder h_v varying from $[-10, 10]$ over 600 disorder realization.