

Each pkl file hold data on the respective model of the circuit identified through its name.

- Example:  
circuit\_results.{model\_name}.decay=True.bsrp.T1=1.5.missAerr=False.L=4.S=8.M=8.pkl

- Model\_names:  
"decay\_only" = Only T1 decay active  
'full\_loss' = All noise sources active  
'lossy\_bs' = only beam-splitter gate noise active  
'lossy\_meas' = only measurement noise active  
'lossy\_snap' = only SNAP gate noise active

- Other tags:  
'decay': Whether background T1 decay was active or not  
Gate type: 'int' = BSFP with Hubbard gates, 'nonint' = BSFP with out Hubbard gates,  
'bsrp' = BSRP  
T1: T1 time of the cavity modes (1.5 ms or 10 ms)  
'missAerr': Whether missassignment errors during readout were turned on  
L: system size  
S: Number of scrambling layers  
M: Number of monitored layers

Each pkl file, once loaded, is a dictionary formatted as such:

ideal\_entropy\_list, loss\_entropy\_list, sys\_fid\_list, anc\_fid\_list = data[p]

p is the probability, ideal\_entropy\_list is 1000 raw data points of entanglement entropy of the ancilla in an ideal circuit, loss\_entropy\_list is 1000 raw data points of entanglement entropy of the ancilla in a noisy circuit, and sys\_fid\_list, anc\_fid\_list are irrelevant data not presented in the work. (See get\_all\_fid\_data\_v3() in the plotting notebook)