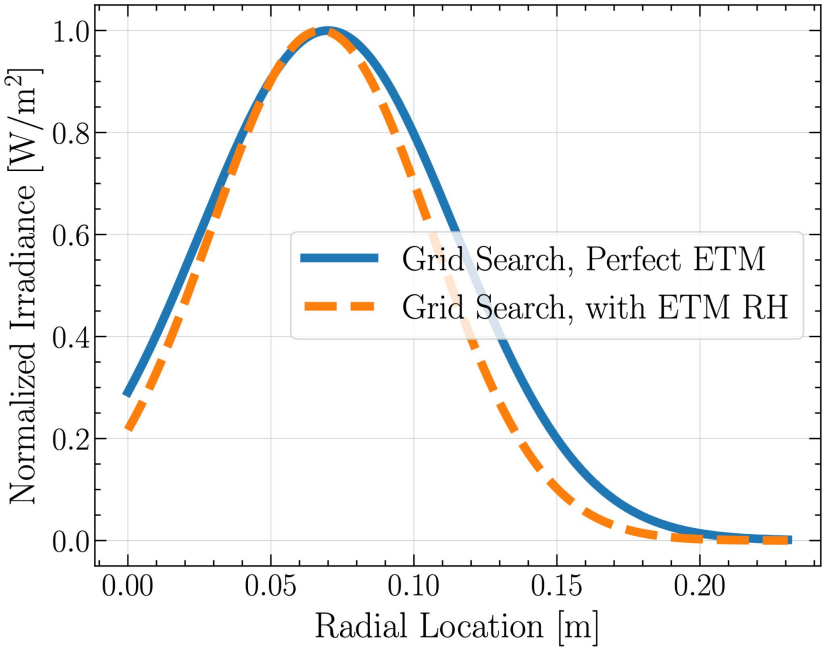
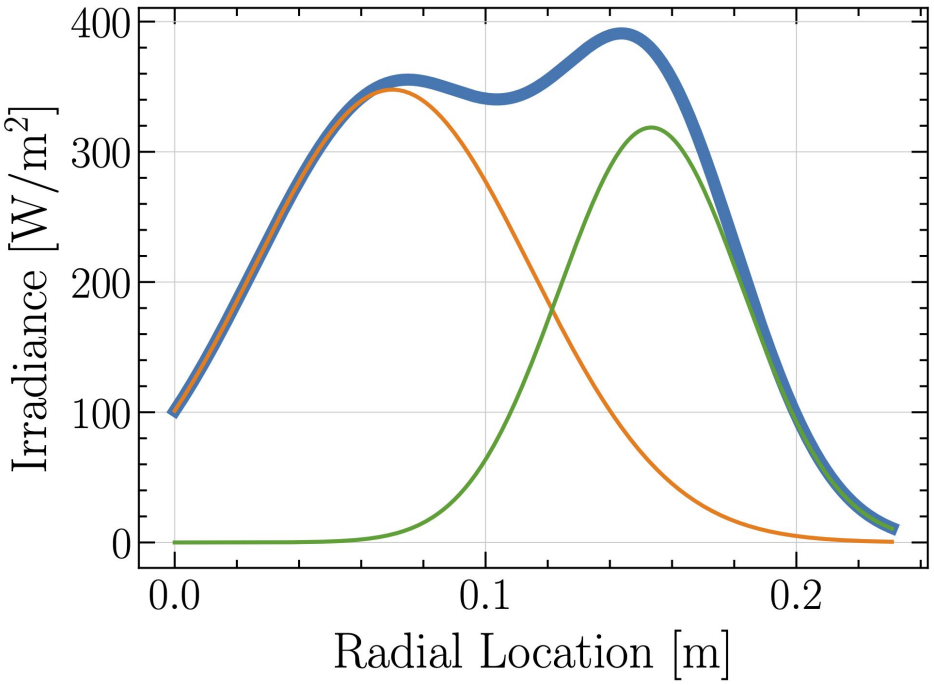
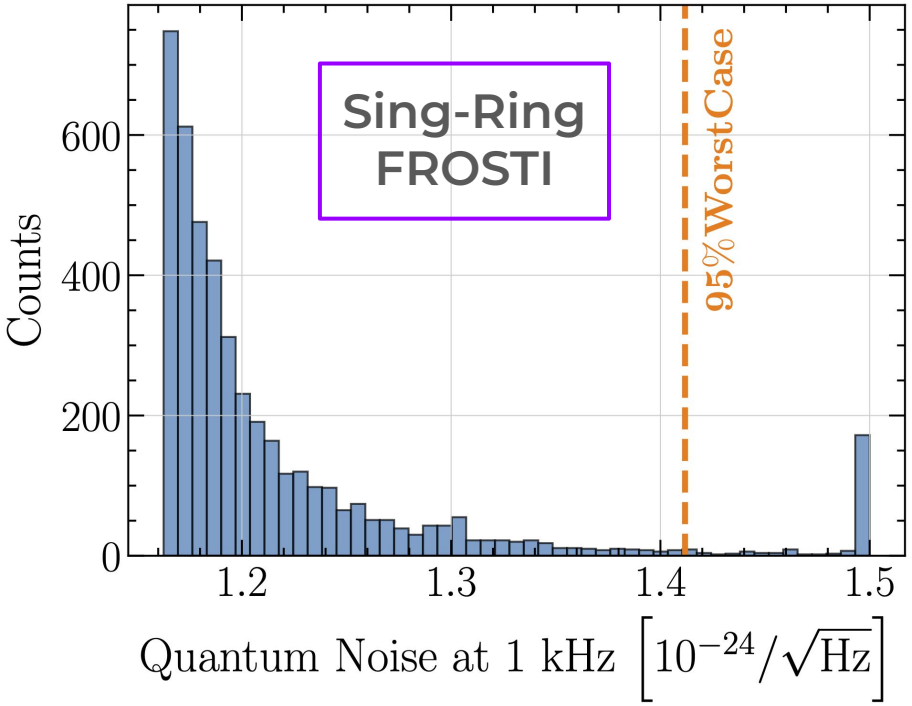
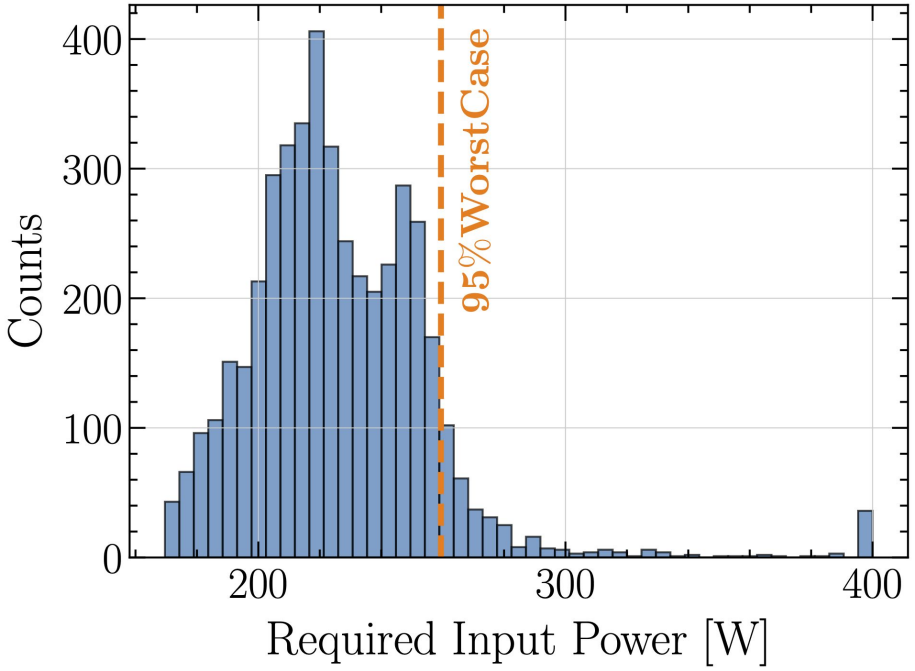
Sensitivity to Realistic Error Analysis



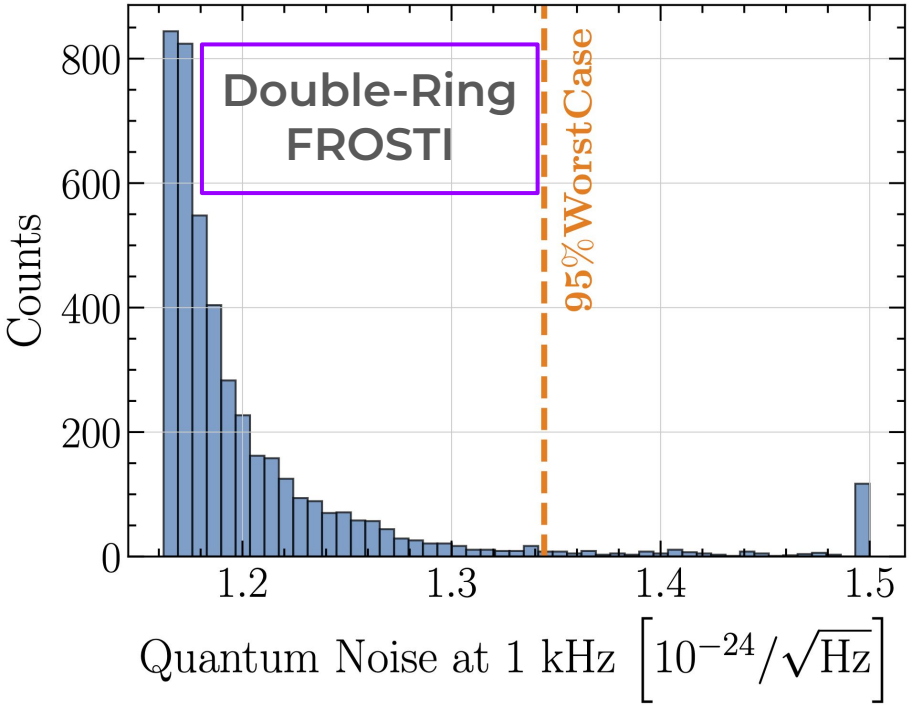


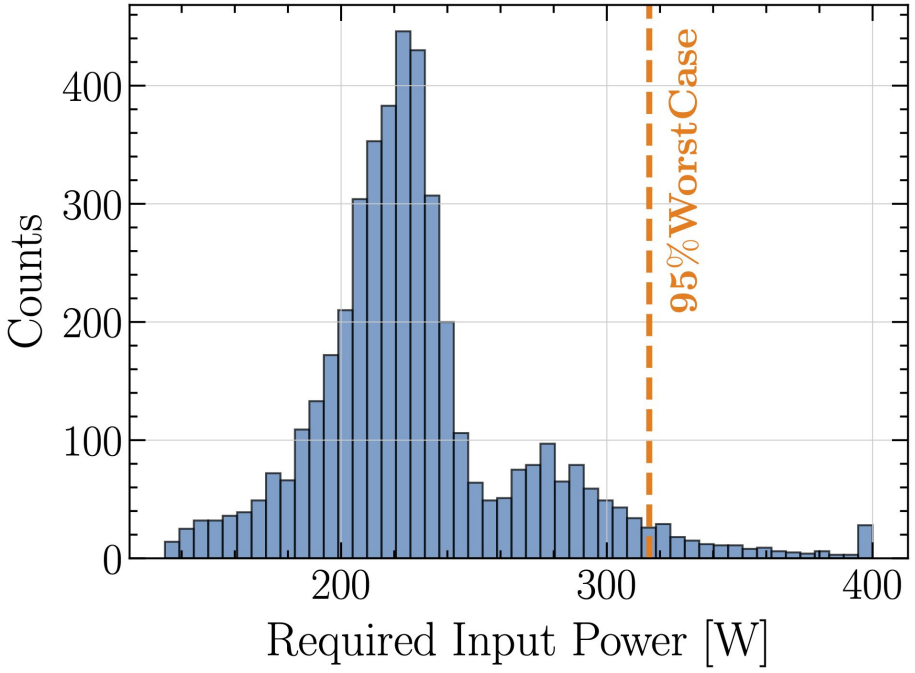
Single-ring FROSTI ITM (left) vs. Double-ring FROSTI ITM (right)





1. 4500 Monte Carlo trials for both sing-ring and double-ring cases.
2. Uncertainties to the major/minor radius of FROSTI ITM/ETM: ±5 mm.
3. Uncertainties to the FROSTI ITM/ETM and RH power: ±1%
4. 95% worst case QN: 1.164e-24 →→ 1.412e-24; Required Pin: 219 W →→259 W





1. Same positional and power uncertainties.
2. Single ring: 95% worst case QN: 1.164e-24 →→ 1.412e-24; Required Pin: 219 W →→259 W
3. Double ring: 95% worst case QN: 1.164e-24 →→ 1.344e-24; Required Pin: 219 W →→316 W

1. Optimize the two-ring FROSTI ITM simultaneously in 4D parameter space search.
2. Grid search the two locations and widths. The two FROSTI powers are set to optimize the QN and the ITM Surf. and Sub. RMS: QN*1e24 + Sub/1000 + Surf/100
3. The RH power is set to remove the curvature deformation in ITM substrate.

[Link to visualization]