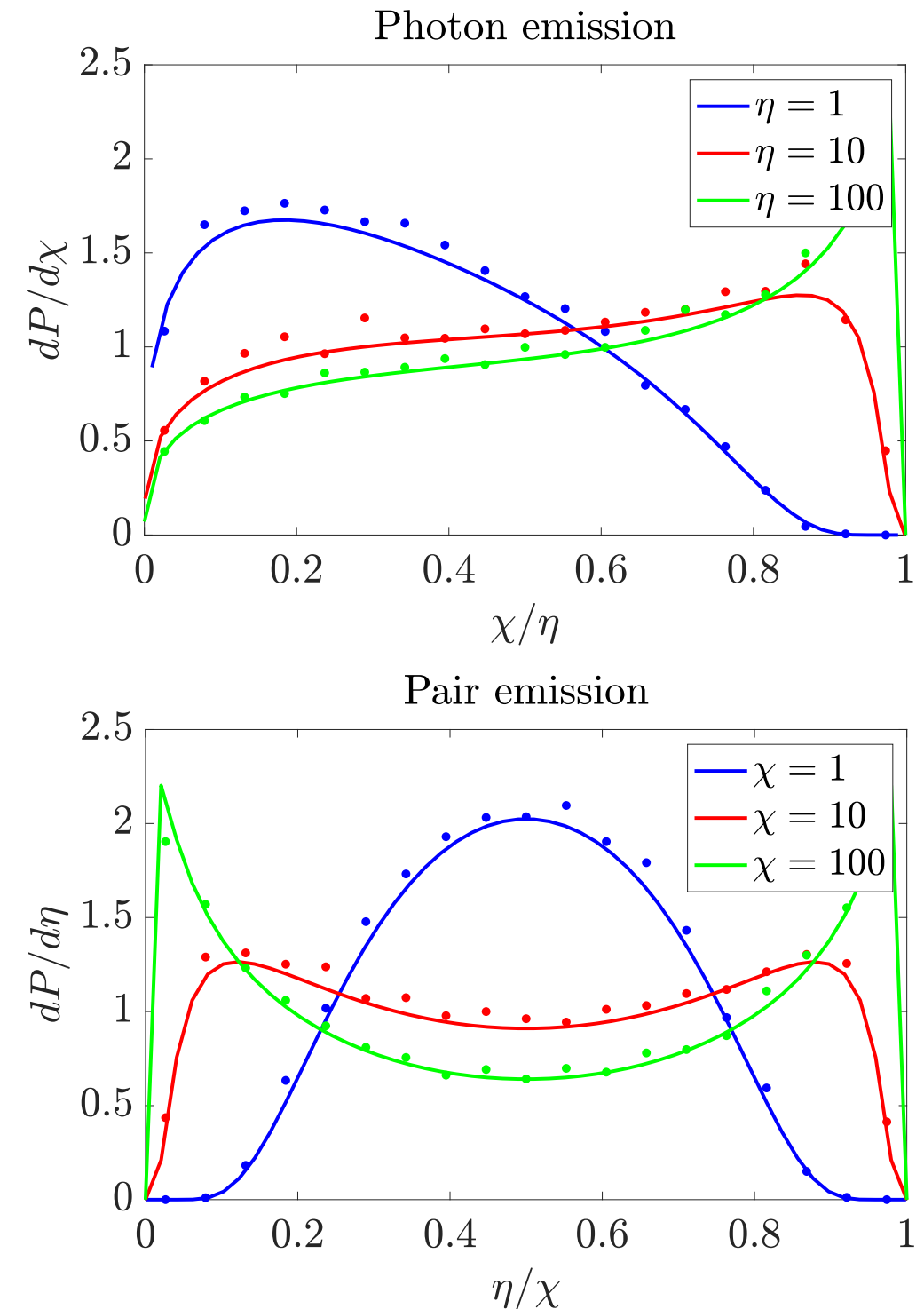


QED spectra

One of the main bottlenecks in PIC-QED codes is the sampling from the quantum spectra.

The probability distributions for photon and pair emission require computing integrals of Bessel functions, which are computationally demanding.



Rejection method efficiency

Efficiency = accepted samples / total draws

It is inversely proportional to the average number of draws until a successful sample.

At $\eta = \chi \sim 1$ only half of the draws are accepted.

For $\eta = \chi \sim 10$ that the efficiency is largest because the distributions are flatter

MC - results from Rejection Sampling

Theory - ratio of numerical integrals of spectra over area of rectangle

