

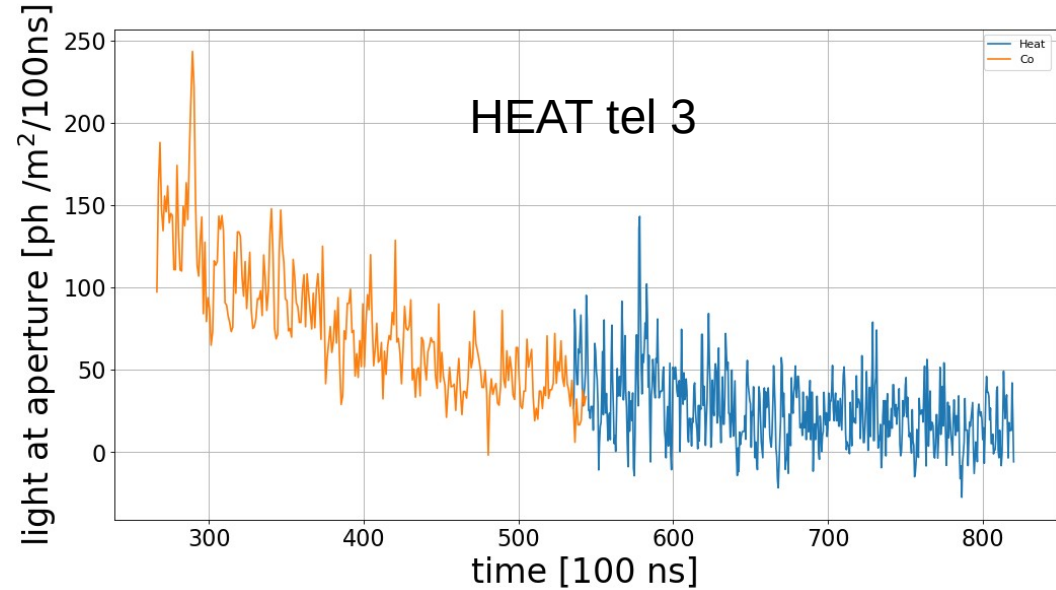
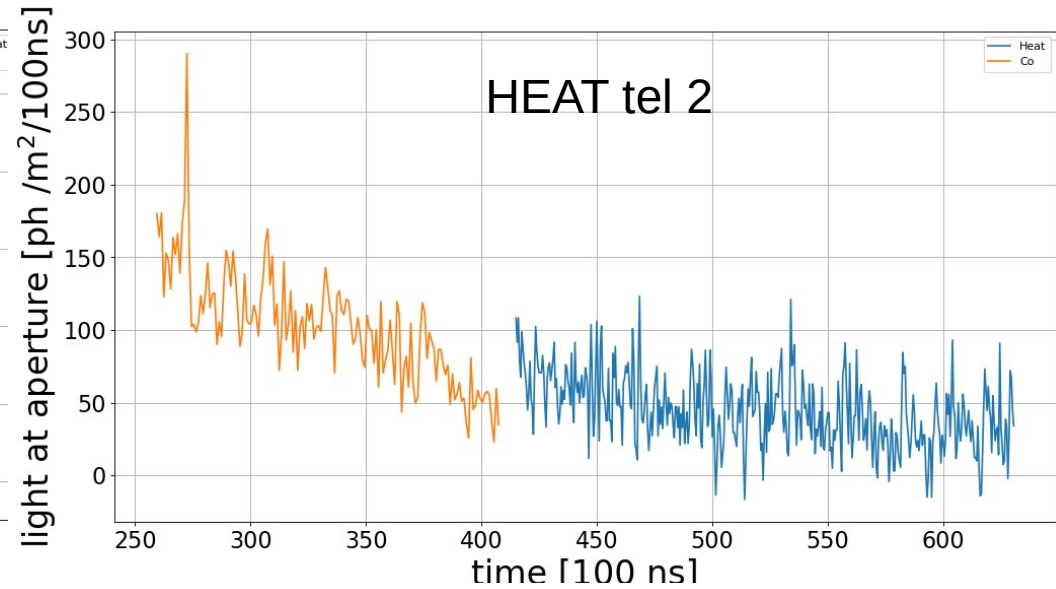
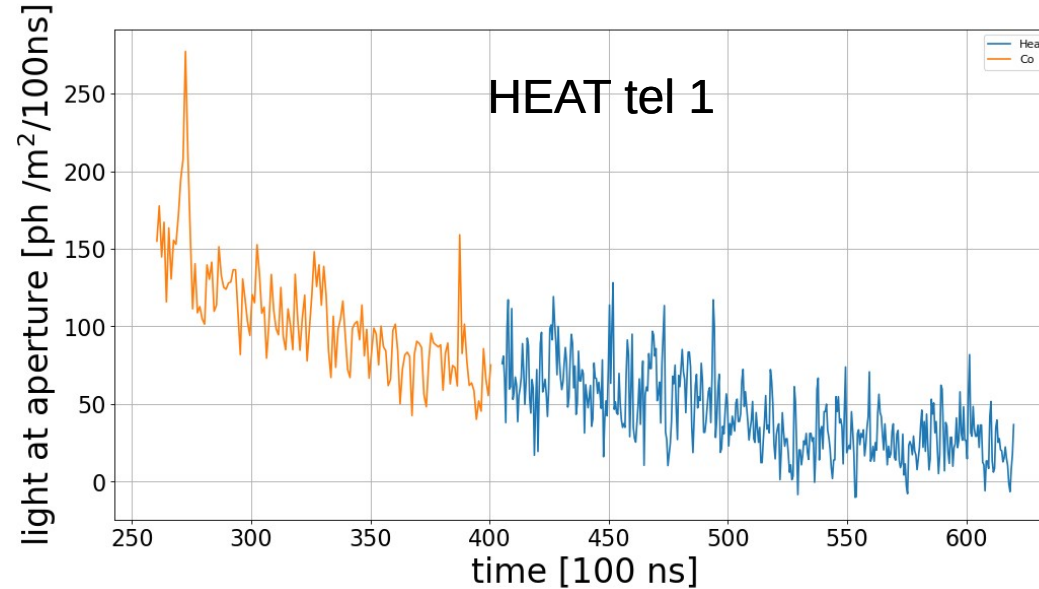
Measuring the Heat/Coihueco energy calibration using inclined lasers

Jose Bellido, Bruce Dawson

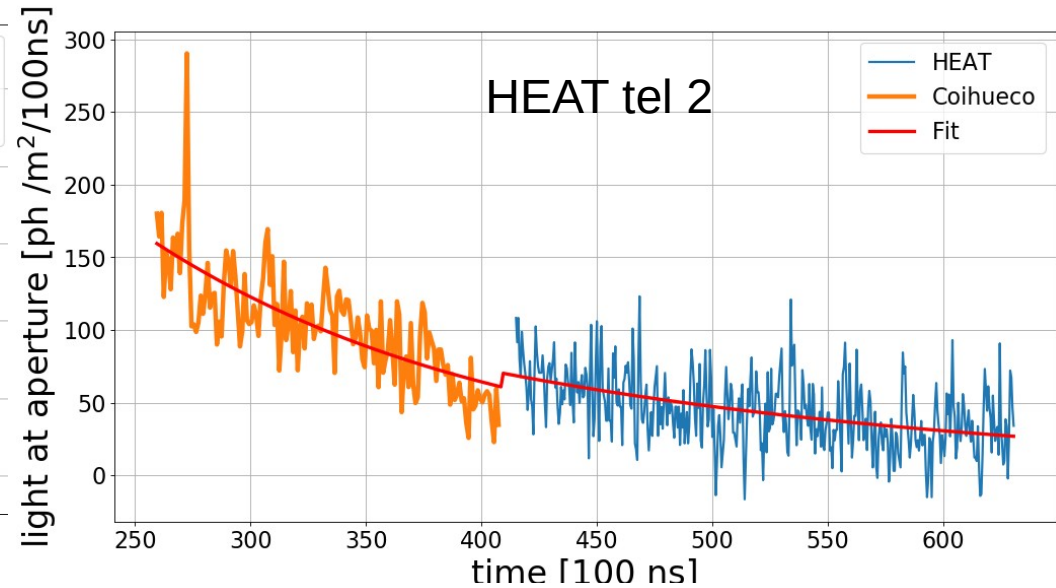
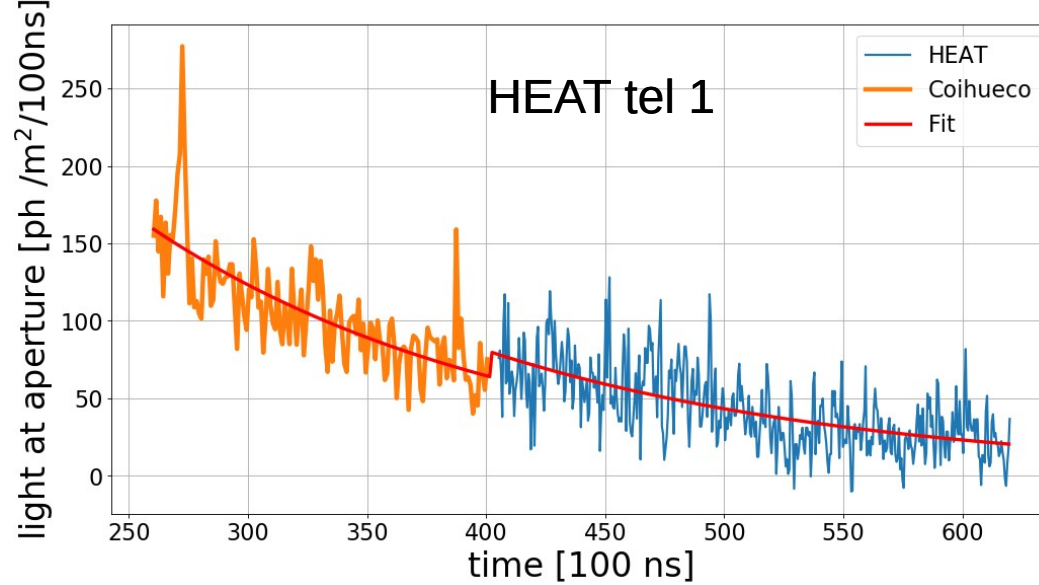
The University of Adelaide

September 13th, 2018

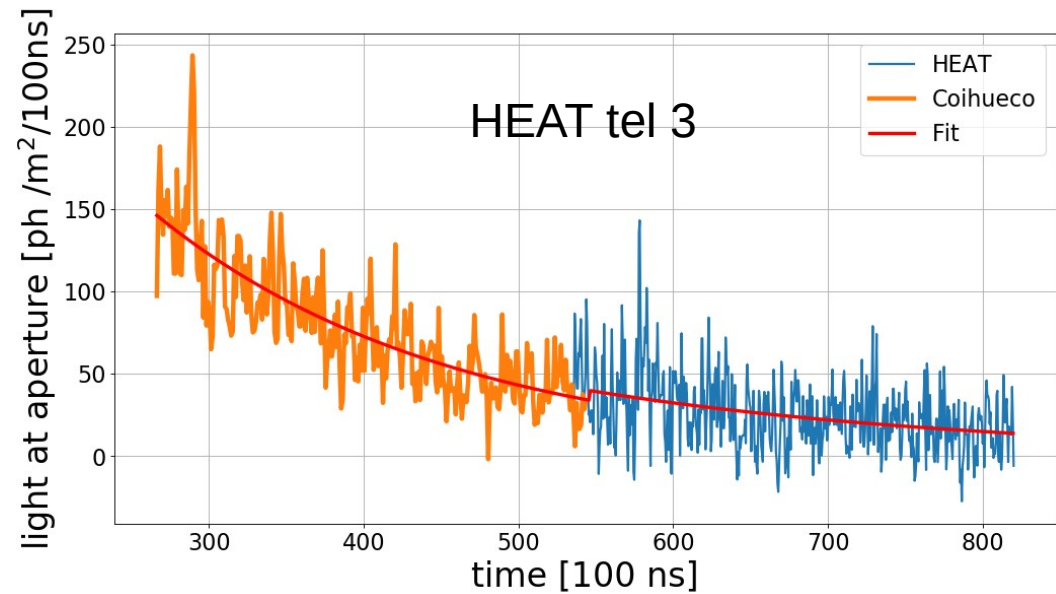
Many thanks to **Lawrence
and Kevin Merenda** for
implementing inclined lasers
in the regular schedule of
CLF (for timing) and XLF (for
HeCo calibration)!

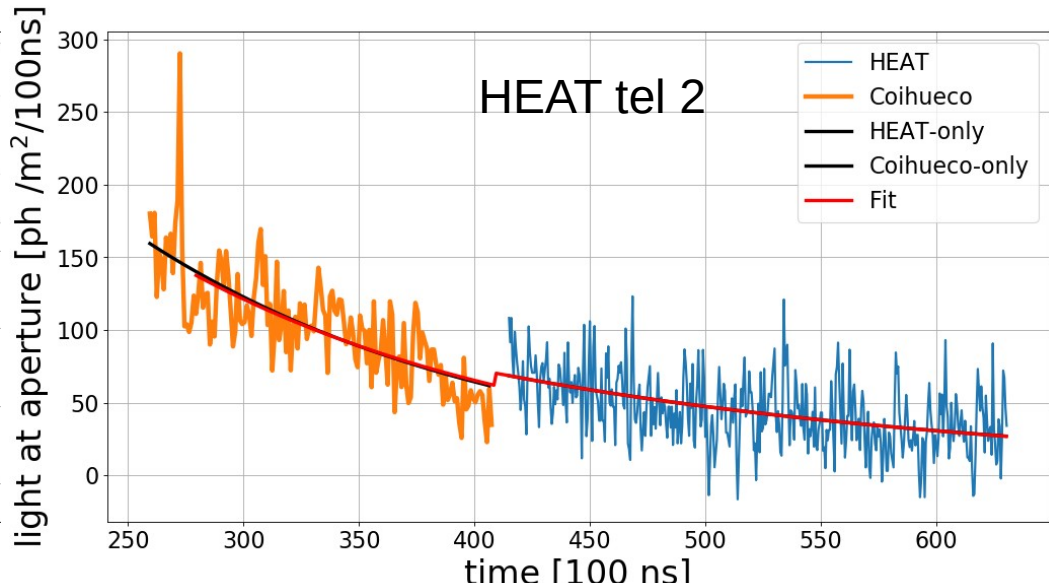
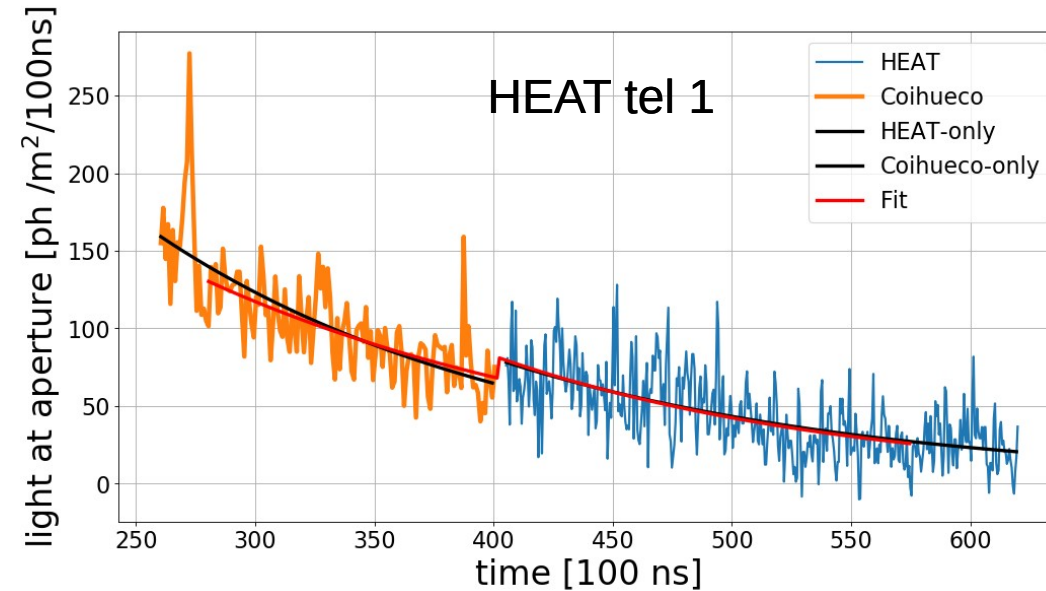


Lasers with **30° elevation** aiming towards HeCo



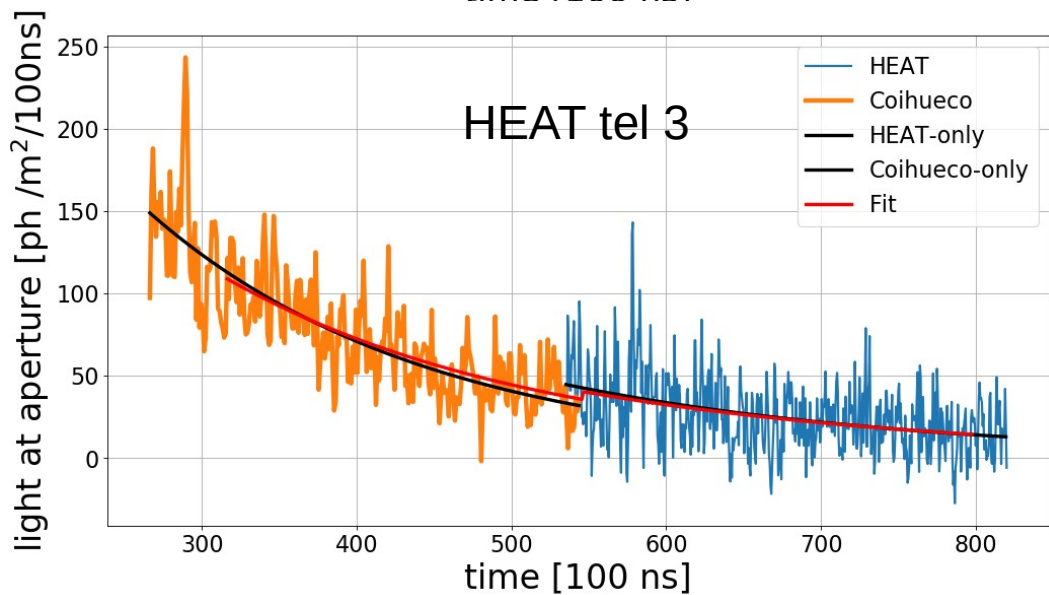
Fitting entire range





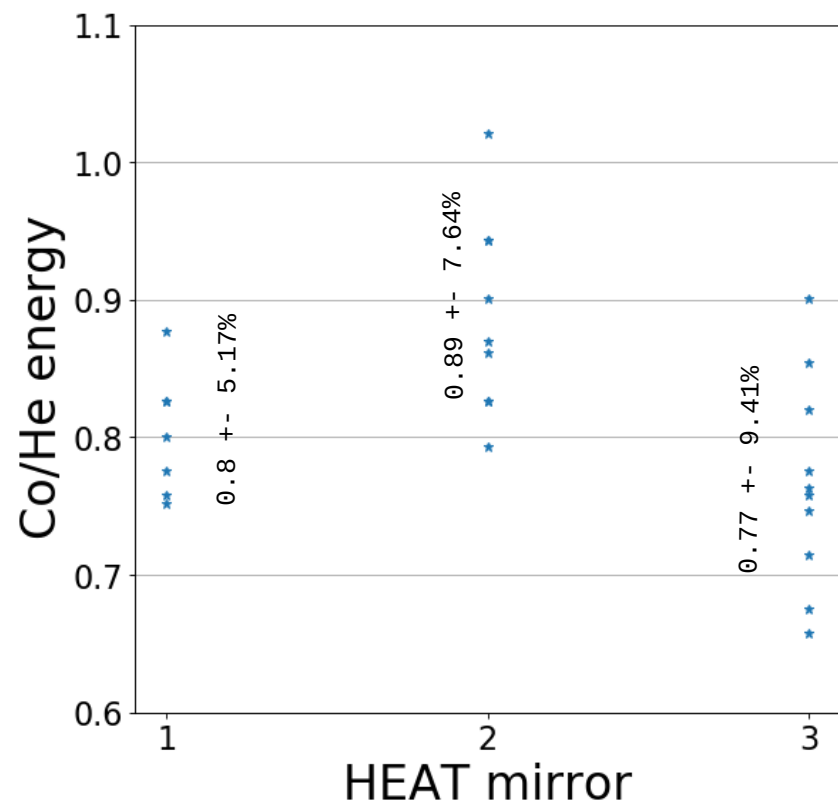
Fitting a smaller range

(to improve the fitting stability)



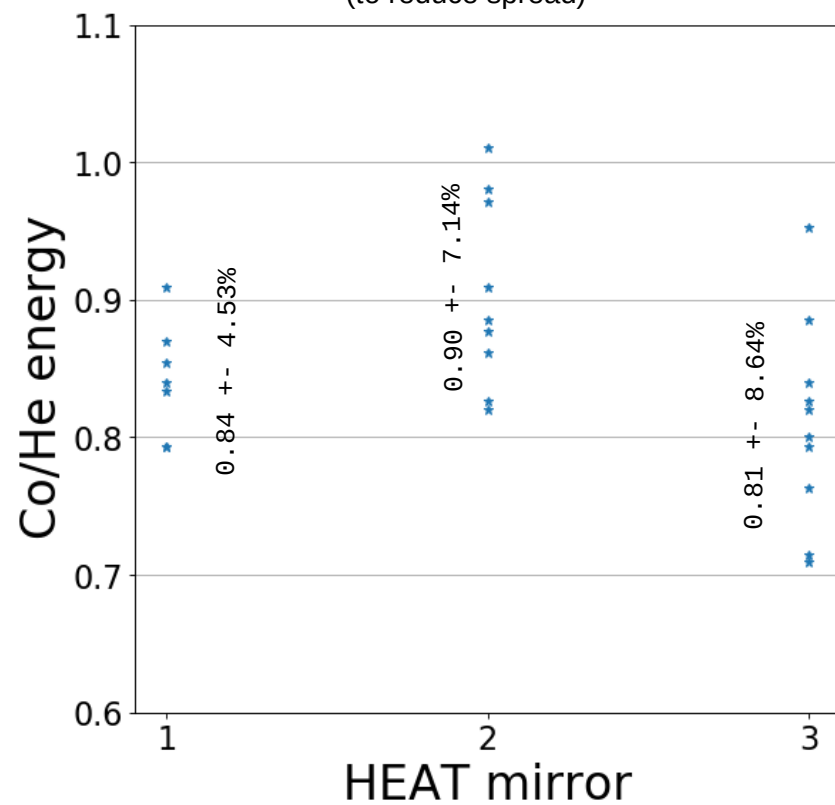
Results

Fitting the entire range

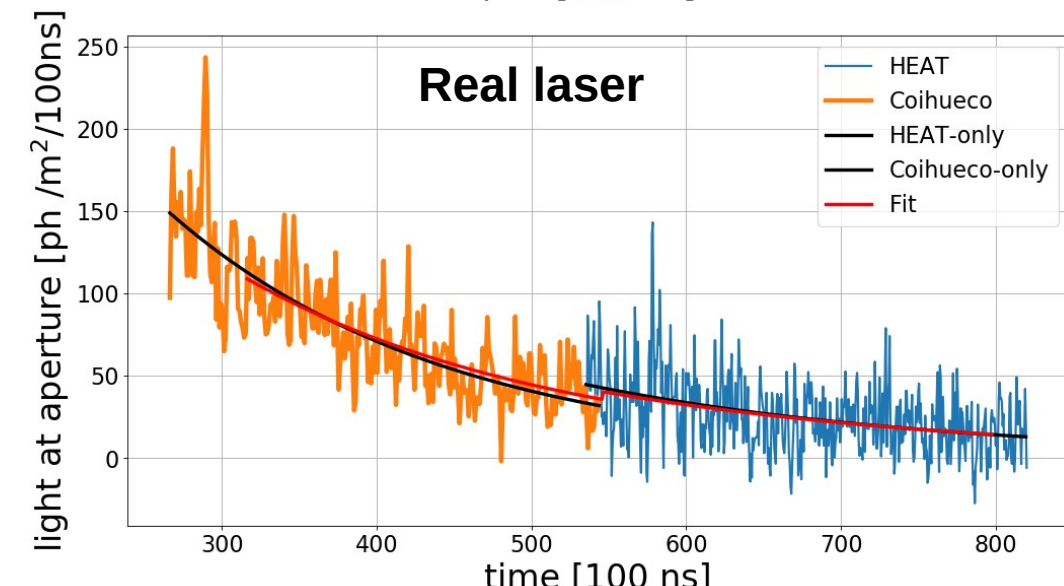
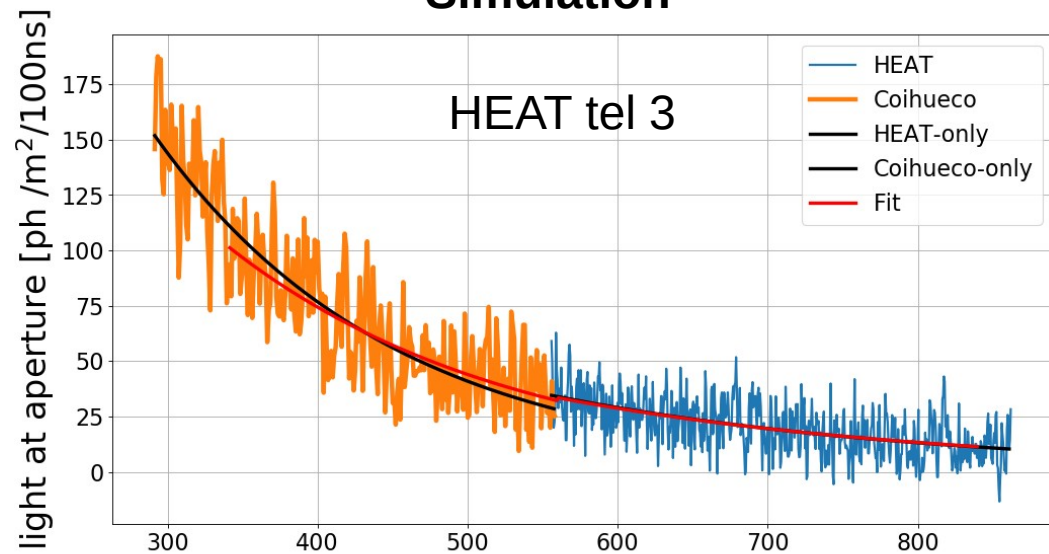


Tuned fit range

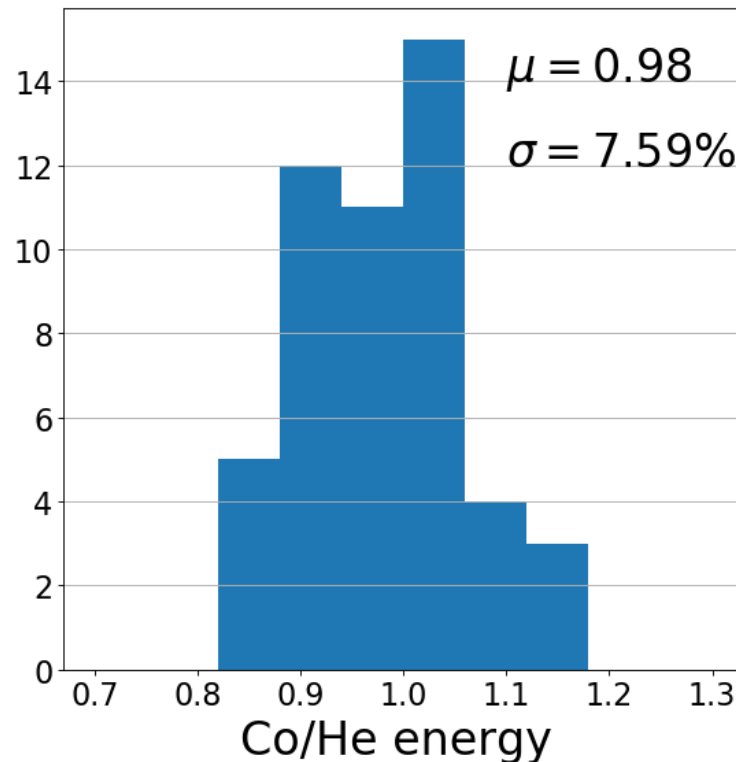
(to reduce spread)



Simulation



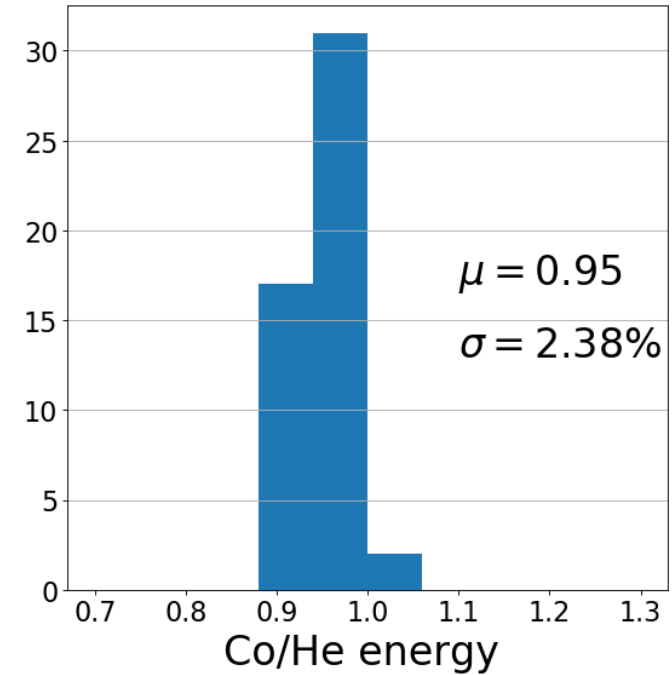
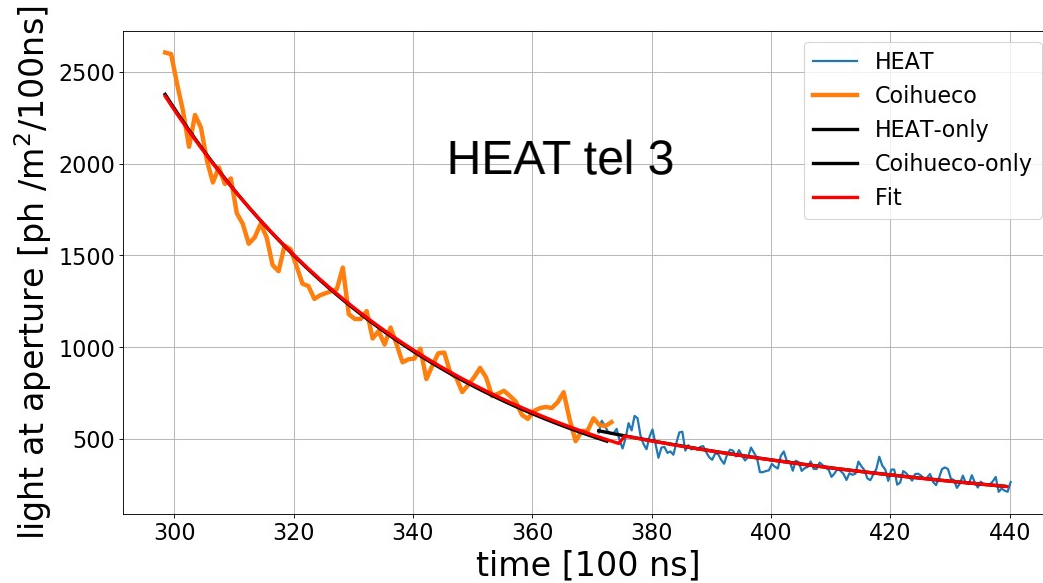
Estimated performance using simulations



With tuned fitting range

... we had to make them more inclined for increased intensity

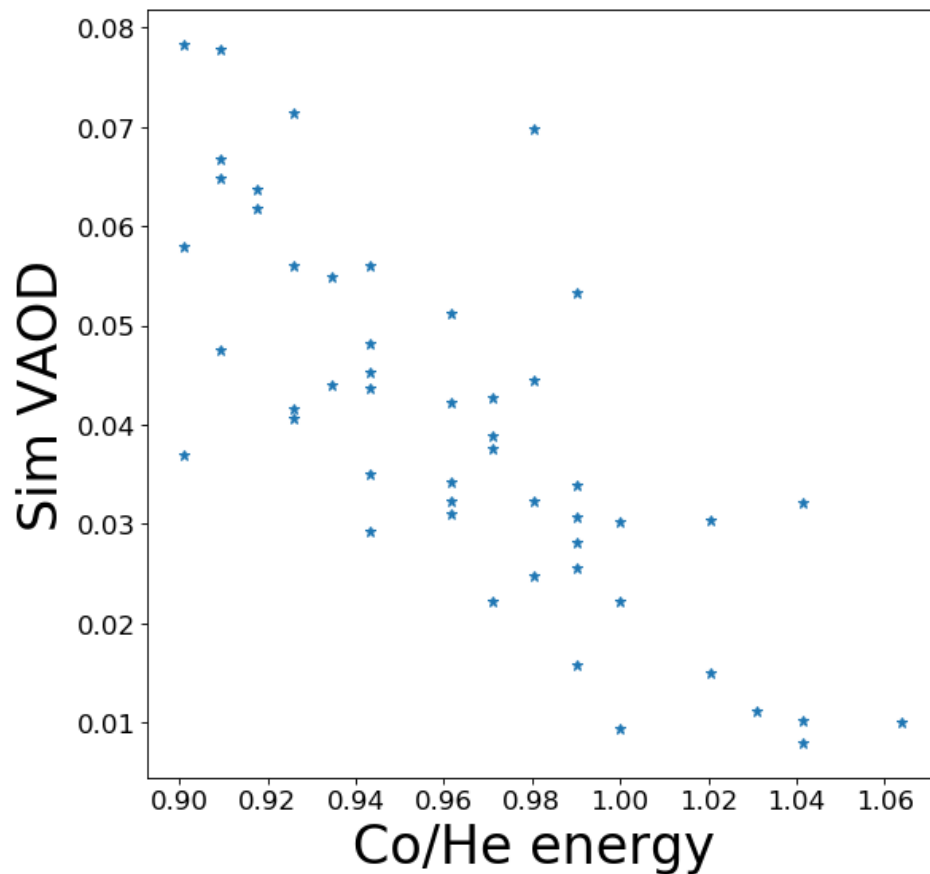
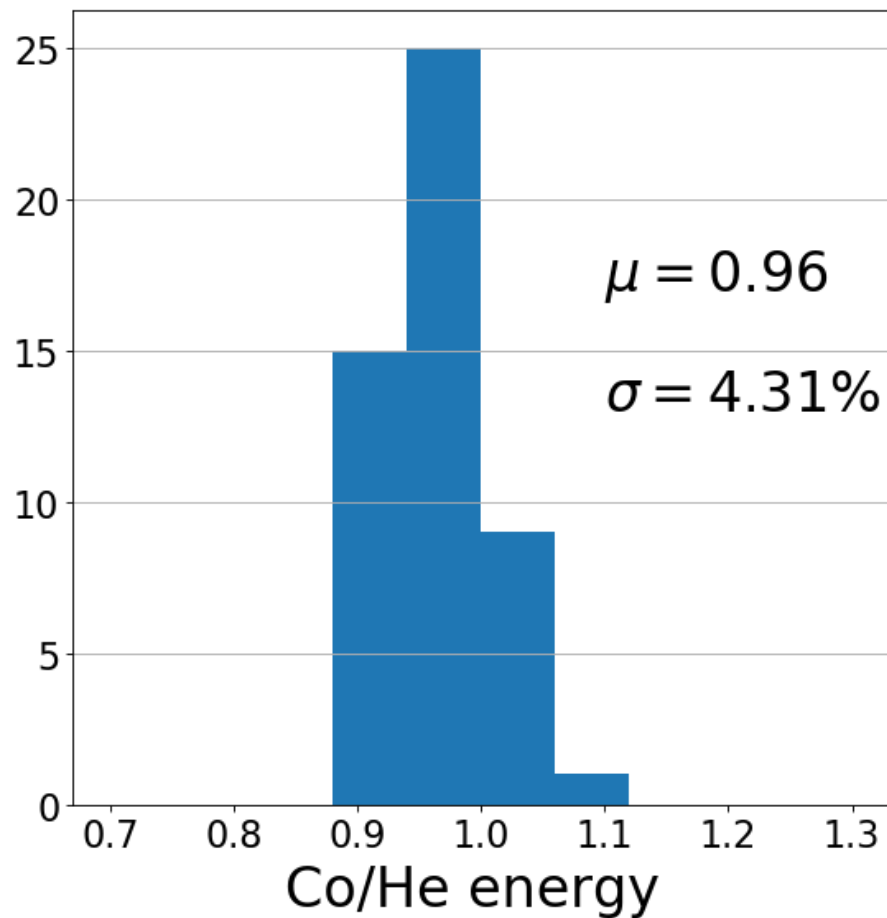
Testing a more inclined laser (10° elevation) (to increase light flux)



Fitting the entire range

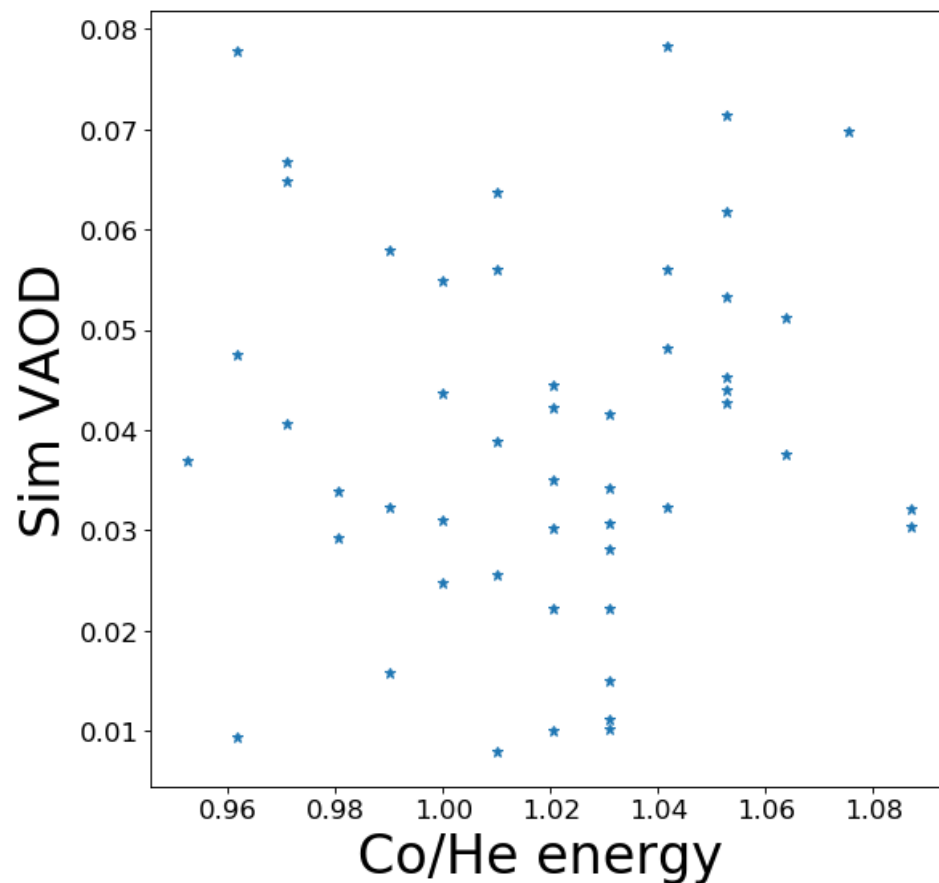
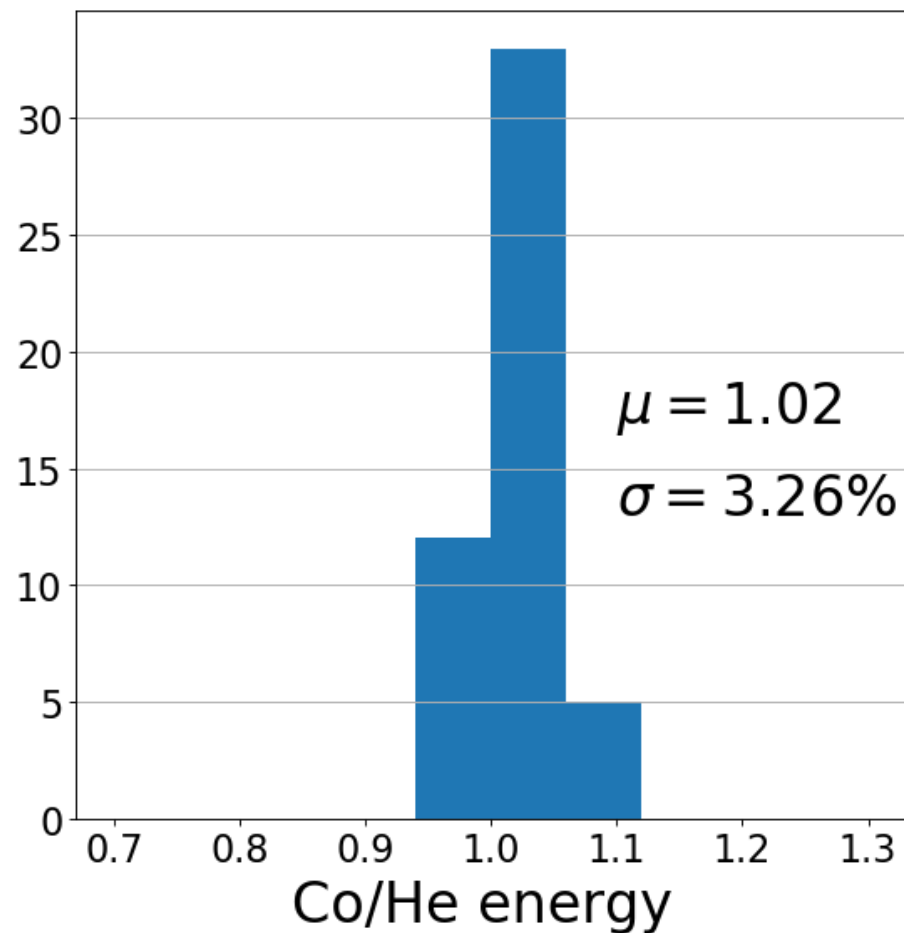
Effects of aerosol variations (10° elevation)

Fitting the entire range



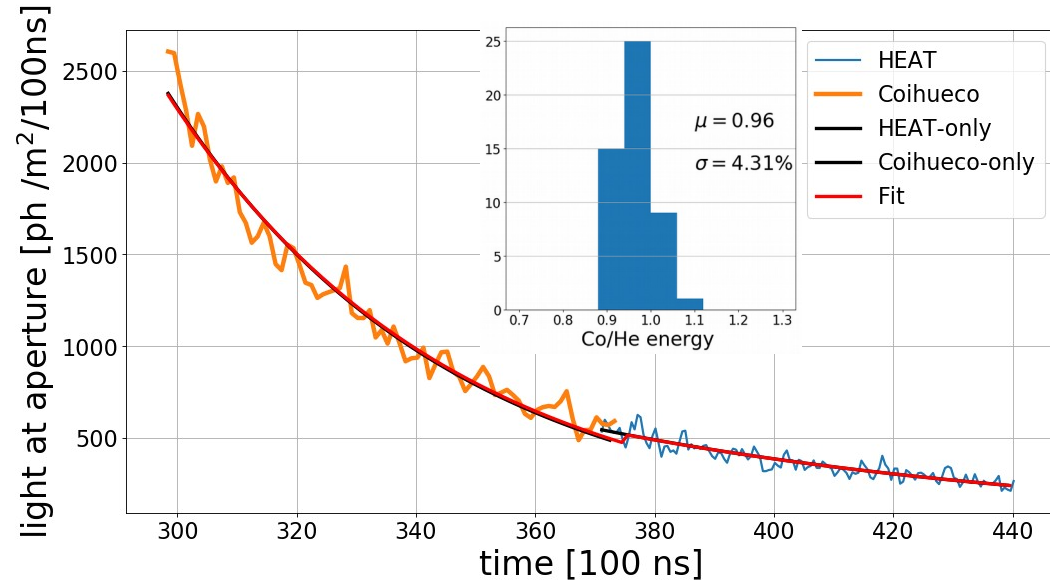
Effects of aerosol variations (10° elevation)

After optimising fit range

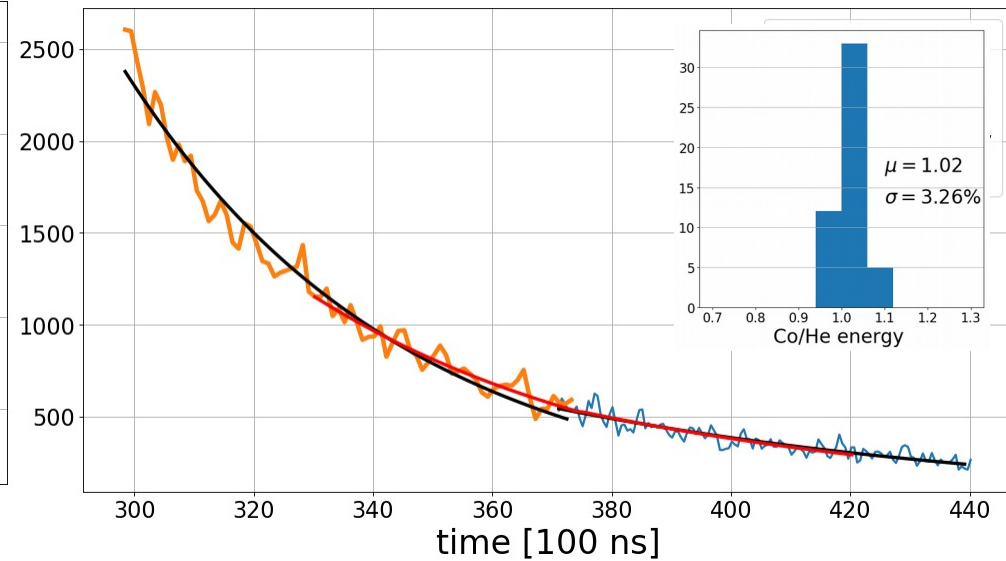


Testing a more inclined laser (10° elevation) (to increase light flux)

HEAT tel 3



Fitting the entire range



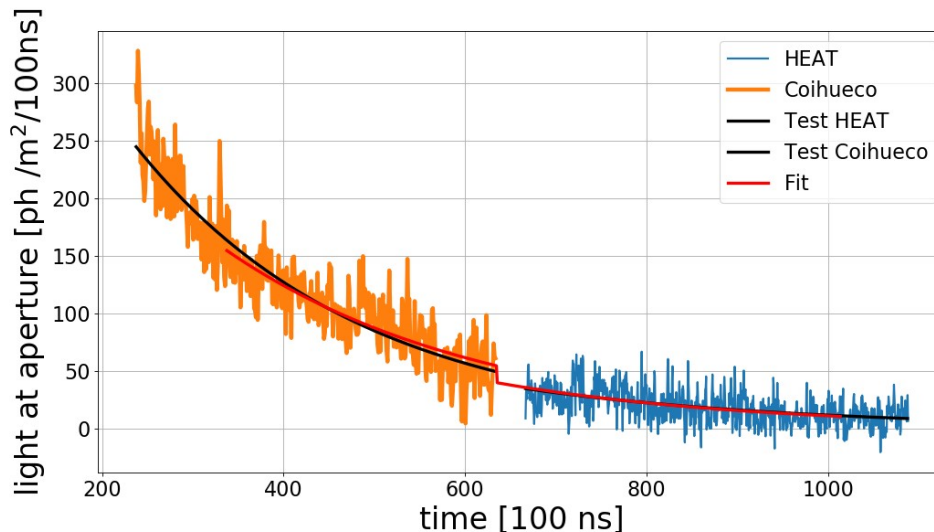
Optimised fit range

Attempt to use historical lasers

In the past lasers were fired aiming AGNs, some of these geometries crossed the HeCo field of view. So, we tried to use them to measure the HeCo calibration in the past.

There are two issues:

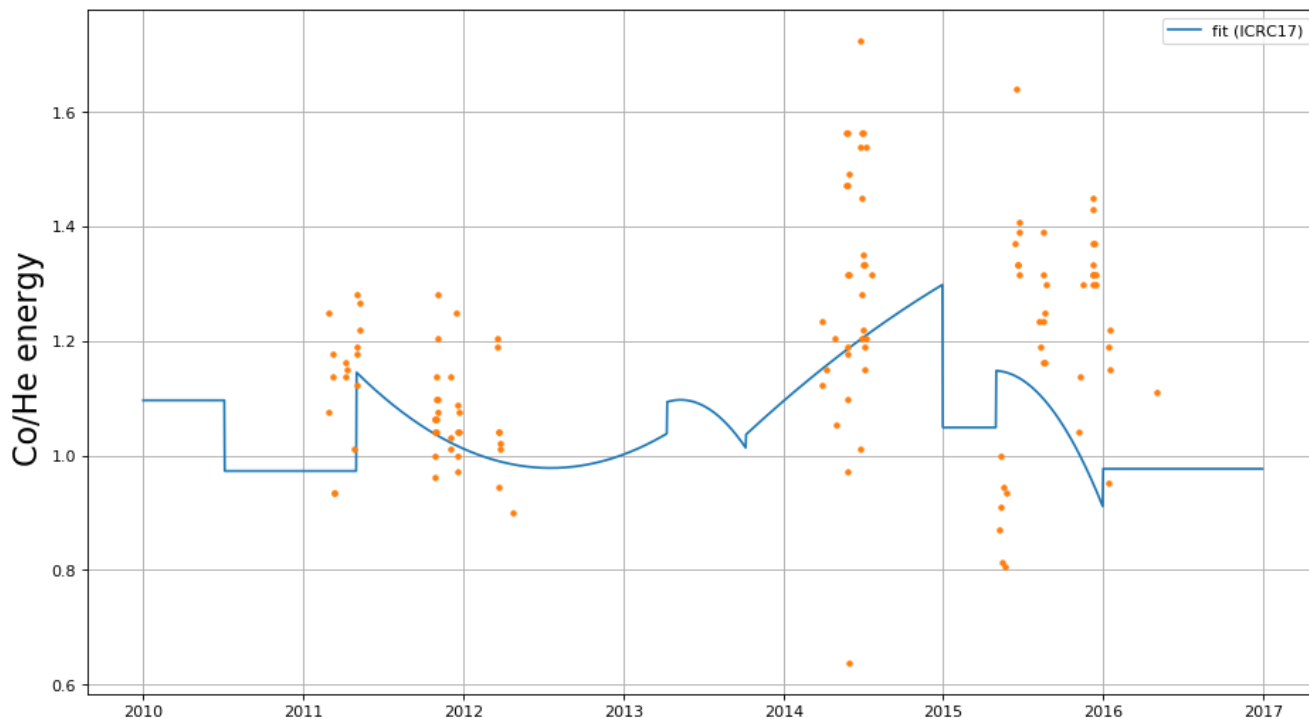
The light flux is low and
The geometries are all different making it difficult to understand systematics.



Attempt to use historical lasers

In the past lasers were fired aiming AGNs, some of these geometries crossed the HeCo field of view. So, we tried to use them to measure the HeCo calibration in the past.

The overall spread is 16%



Attempt to use historical lasers

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Comparing results using
Joachim's module

Thanks to Violet!

