

StarDICE calibration bench

StarDICE workshop

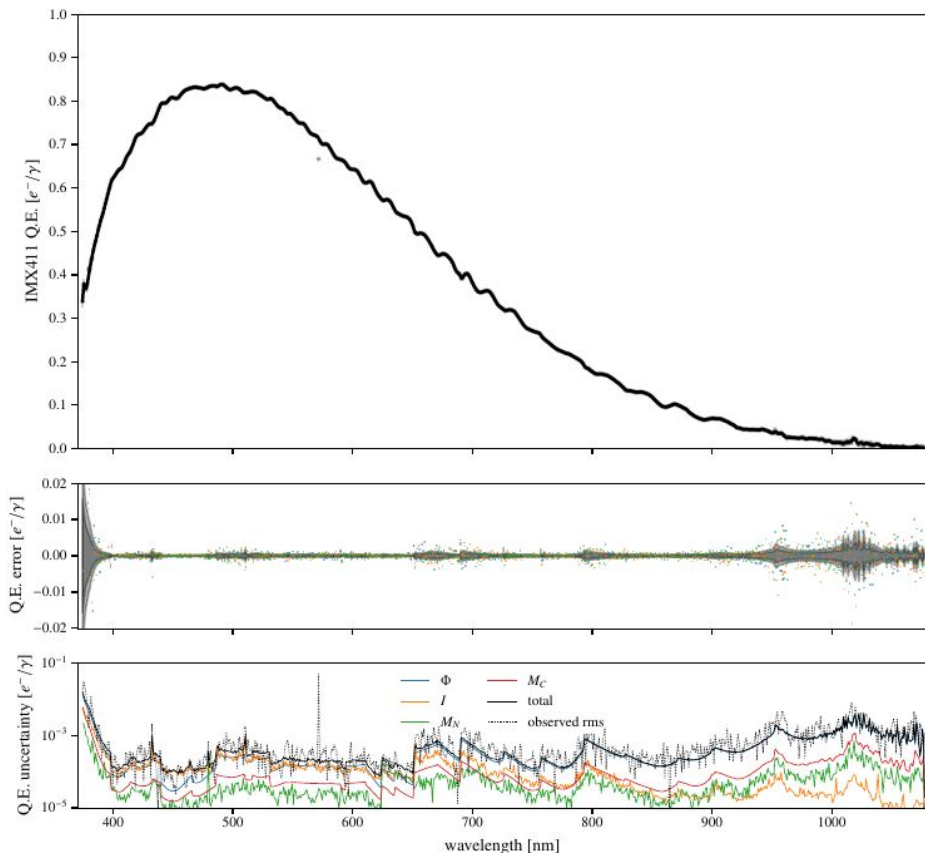
LPNHE, 29 novembre 2023



Marc Betoule et al.



Providing calibrated sensor for the LED mapping



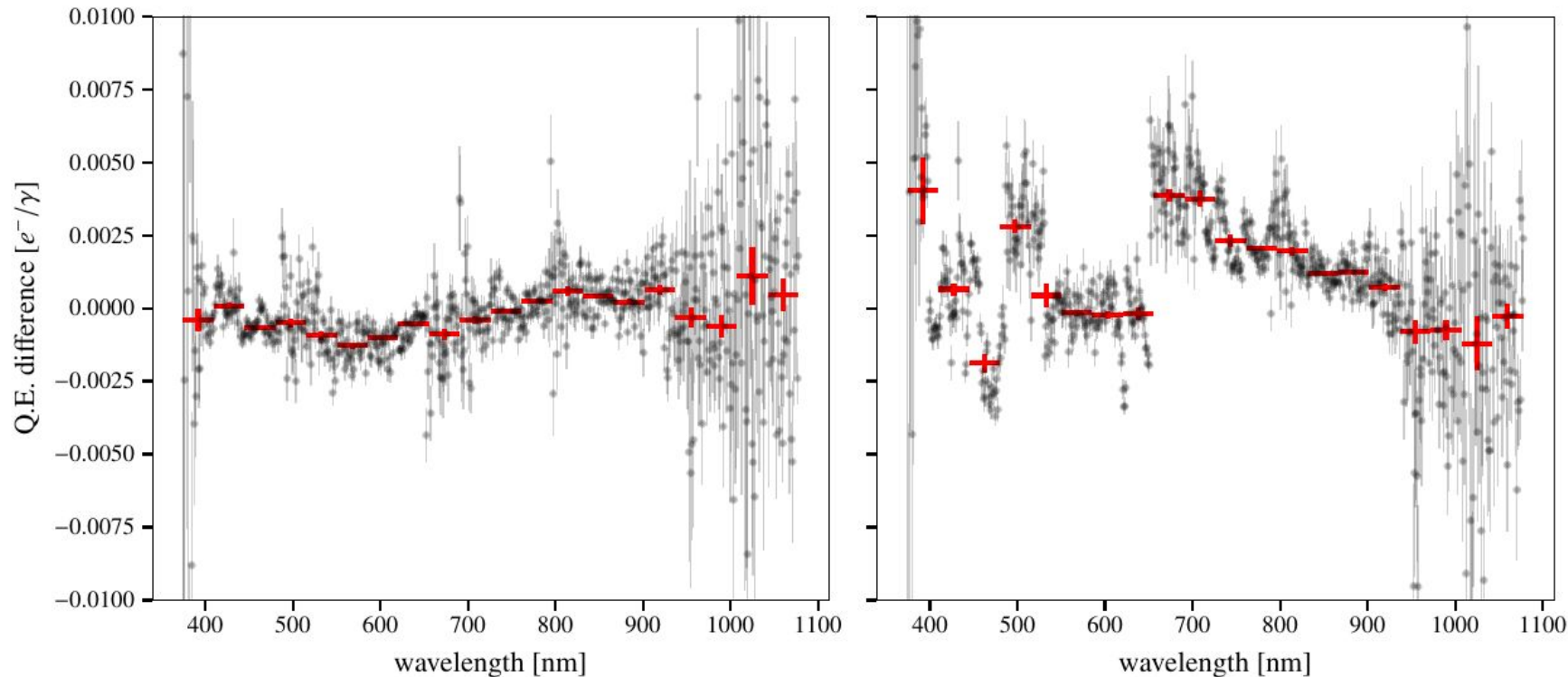
We need NIST-calibrated sensitive sensors to map the radiance of the artificial star LEDs

A first demonstration of our ability to calibrate sensors wrt NIST in Betoule et al. (2022)

Required accuracy reached in the range 400-850 nm

The accuracy in the infrared was actually limited by the very poor QE of the calibrated sensor

Result from the demonstrator



Main systematic was related to the non-linearity of the sensor but good enough for pre-survey

Could improve by itself simply because the new camera could be more linear

Conclusion

- We have ambitious plans to improve the calibration wrt to the previous version
 - Enclosed and thermalized NIST photodiode
 - Pulsed light-source for linearity study
 - Amplified photodiodes to speed up scans
 - Better mechanics to perfect focalisation
 - And of course IR sensitive sensor
- But just switching to the new sensor is likely to do the job for the pre-survey
- So let's do that and keep the harder work for the next step

