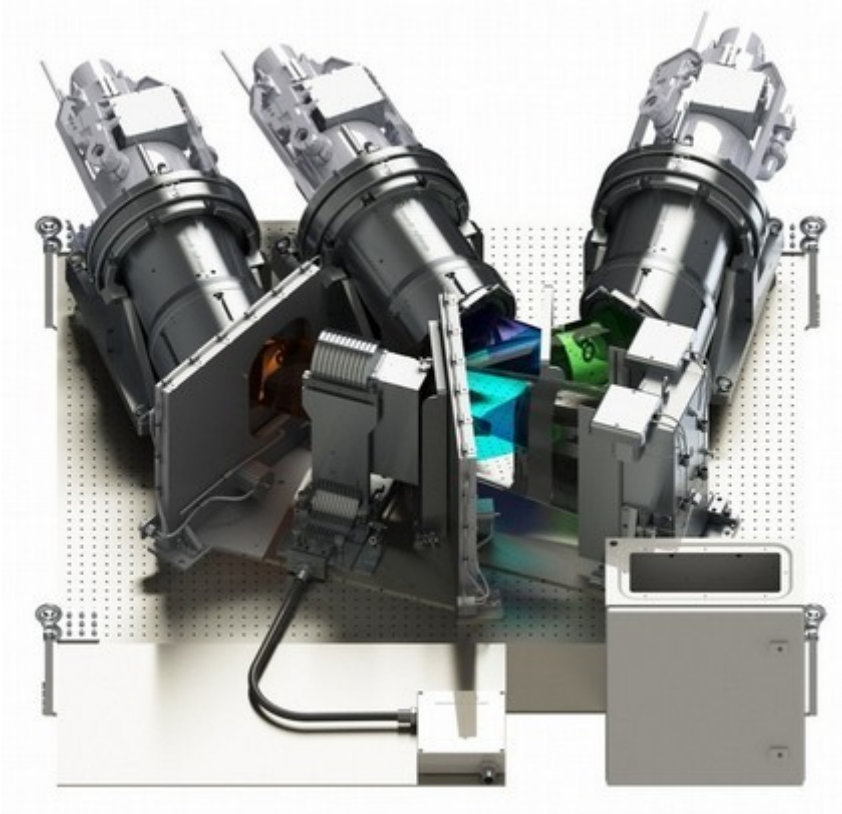

SM#1 Throughput Measurement Brief Status

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Spectrograph Telecon
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Direct throughput estimate (without a model)

- We first estimate the spectrograph throughput by **dividing** the **integrated flux in each CCD** (for each LED and each fiber 11-20) by the **injected flux (DKD)** :

$$\eta_{[\mathrm{e\text{-}}/\gamma]}(\lambda_{\mathrm{LED}}) = (QE_{\mathrm{CCD}} \times T_{\mathrm{optics}}(\lambda_{\mathrm{LED}})) = \frac{\phi^{\mathrm{CCD}}_{[\mathrm{e\text{-}}/\mathrm{s}]}(\mathrm{LED})}{\phi^{\mathrm{injected}}_{[\gamma/\mathrm{s}]}(\mathrm{LED})}$$

- For the moment, no FRD correction (see below).

- What we got that way is an **estimate of the spectrograph throughput** at the LED wavelength (weighted by the LED spectrum)

- Comparison with the **DESI optical model** (**without fibers**)

SM#1 : Exposure time : shutter time correction

- Series of exposures with **increasing exposure time** and **different neutral densities** filters have been taken (first and second campaigns).

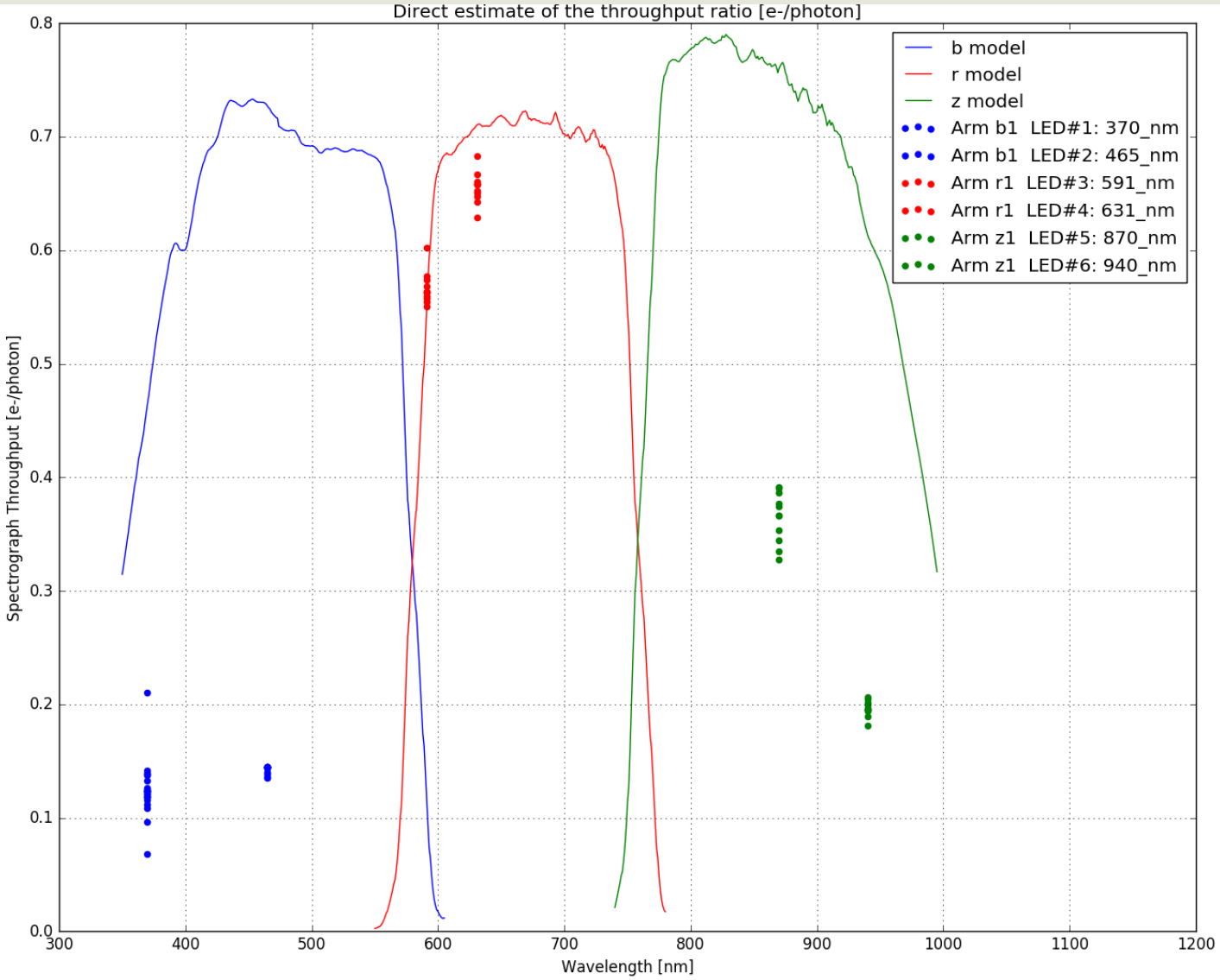
- Assuming at least linearity for low fluxes, we were able to estimate an effective exposure time correction (**same result on the 3 arms**) : we got last week :

$$\Delta t_{\mathrm{effective}}^{\mathrm{SM\#1}} = [\mathrm{EXPREQ}] + 0.662\,\mathrm{s} \pm 0.003\,\mathrm{s}$$

- For EM#1 the measured offset was (May 2017) :

$$\Delta t_{\mathrm{effective}}^{\mathrm{EM\#1}} = [\mathrm{EXPREQ}] + 0.36\,\mathrm{s} \pm 0.01\,\mathrm{s}$$

EM#1: Direct throughput estimate (2017)



SM#1: Direct throughput estimate (2018-04-09)