

ZTF-DR2 volume limited SNe Ia sample

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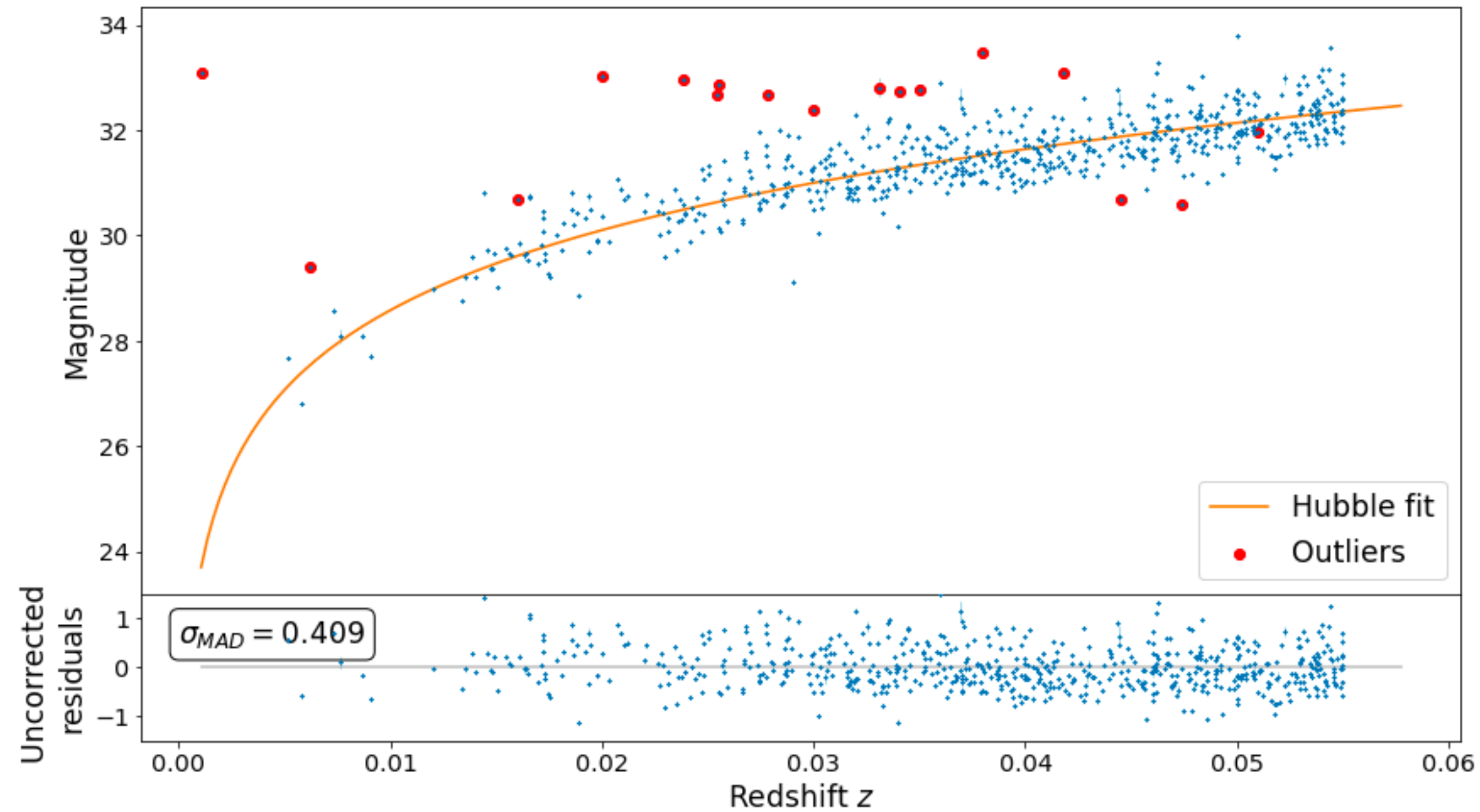
Supervisor: Mickaël Rigault

12th May 2022

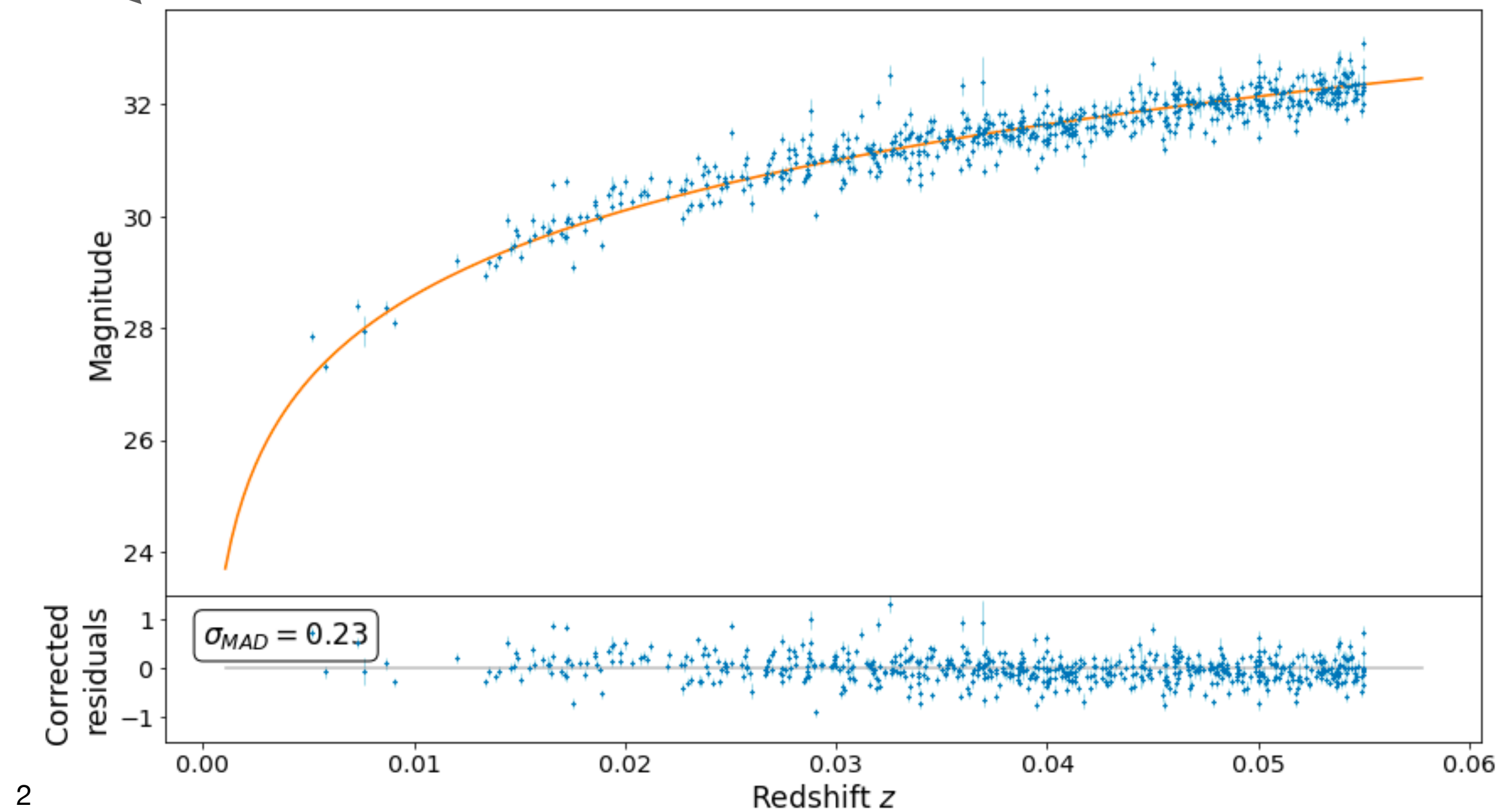
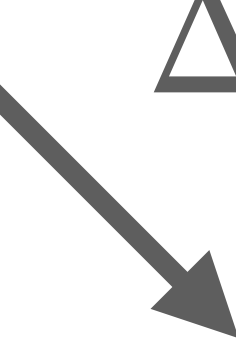


Supernovae as a standard siren

Standardisation process

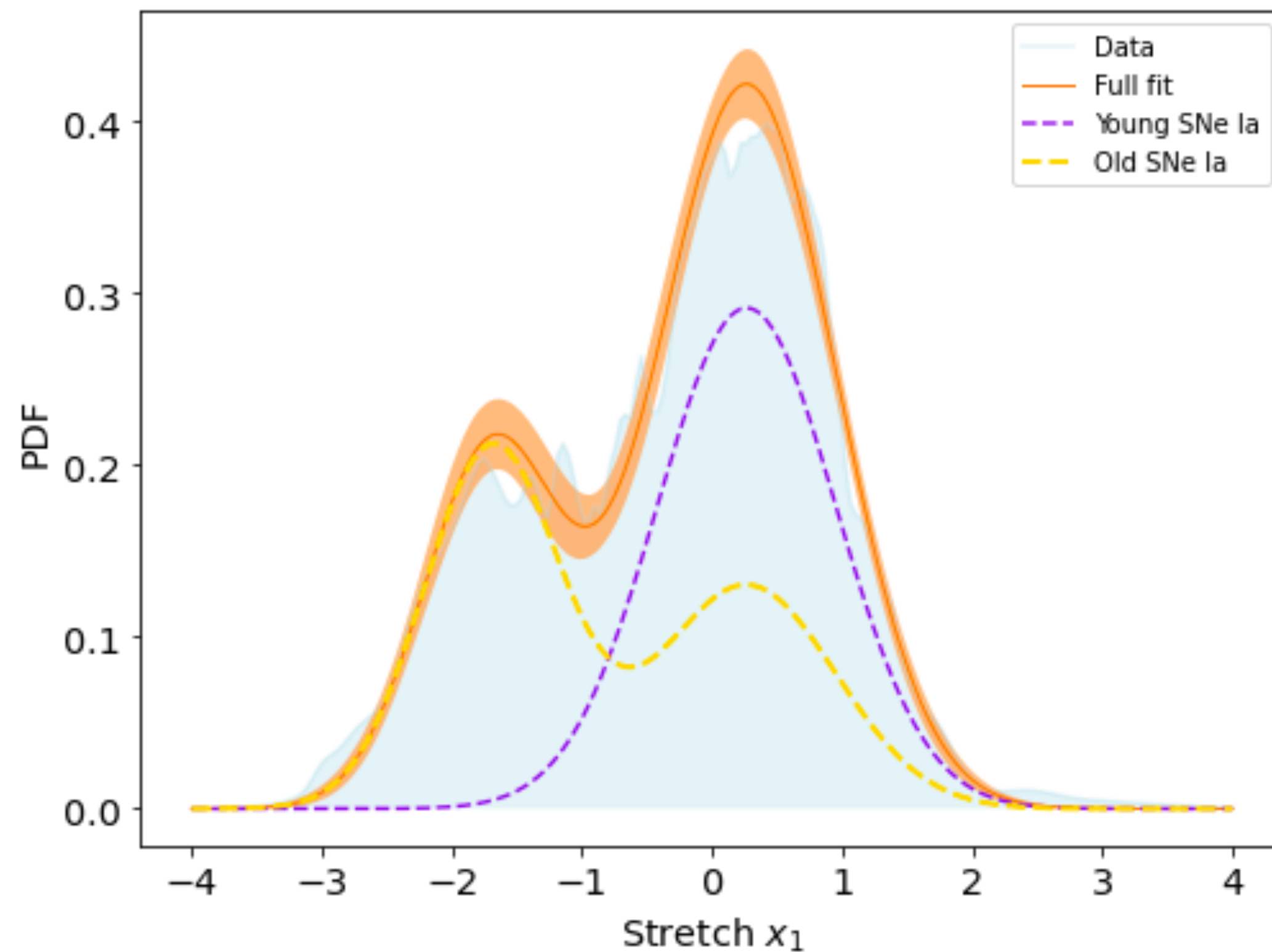


$$\Delta m = \beta c + \alpha x_1 + M \quad (\text{Tripp 1998})$$

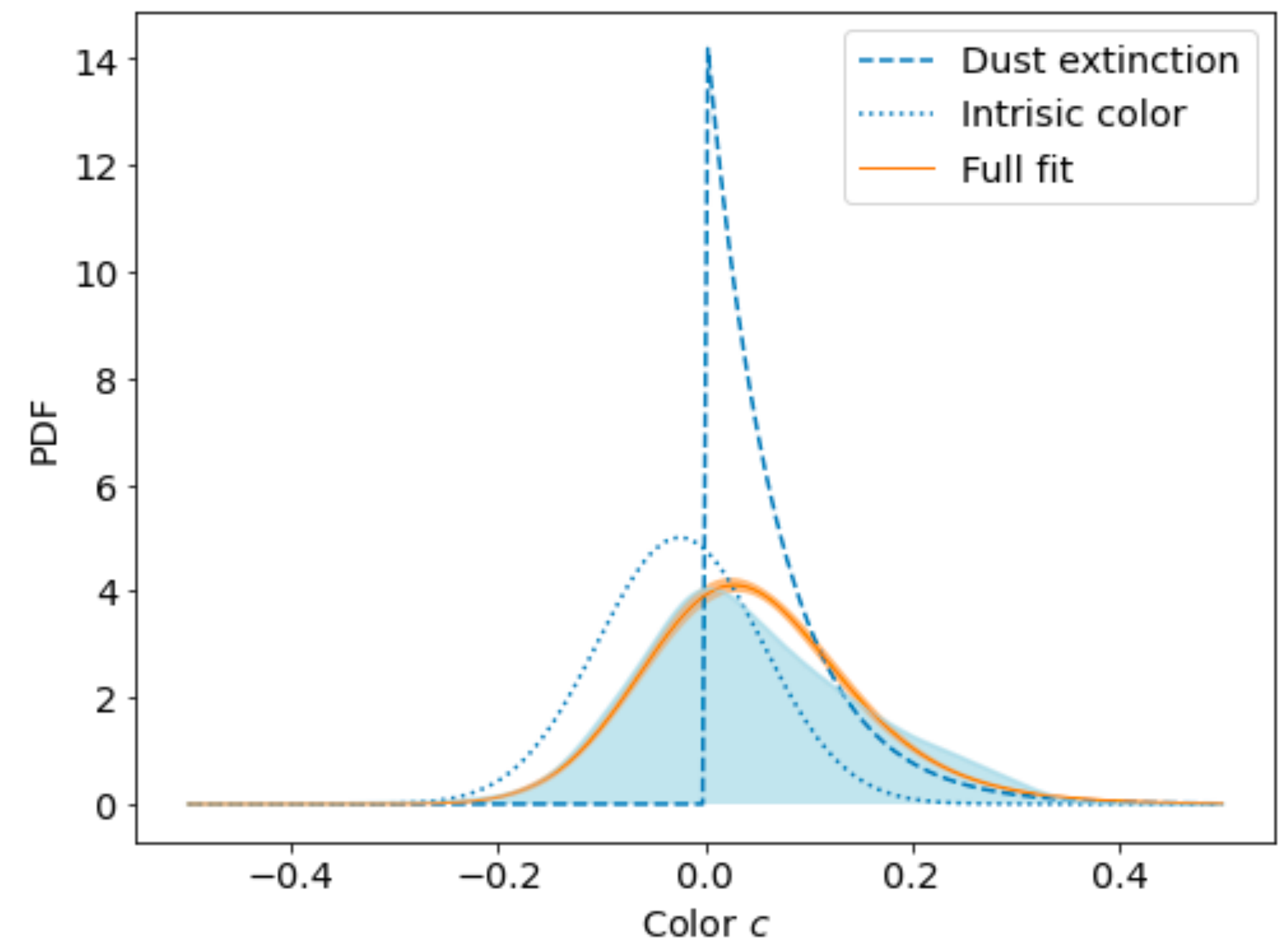


Understanding stretch and color distributions

$$\Delta m = \beta c + \alpha x_1 + M$$



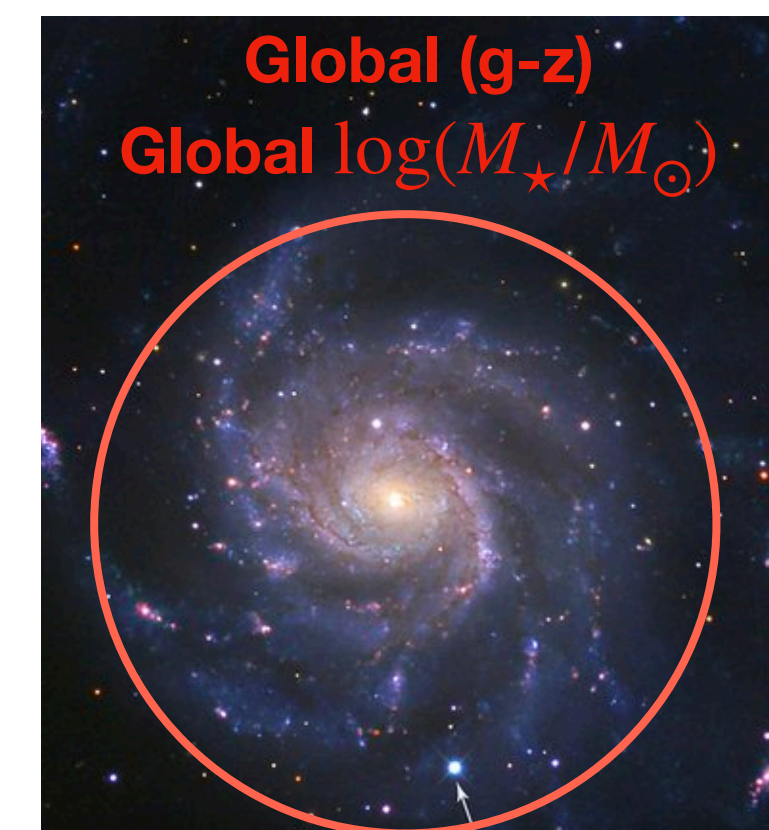
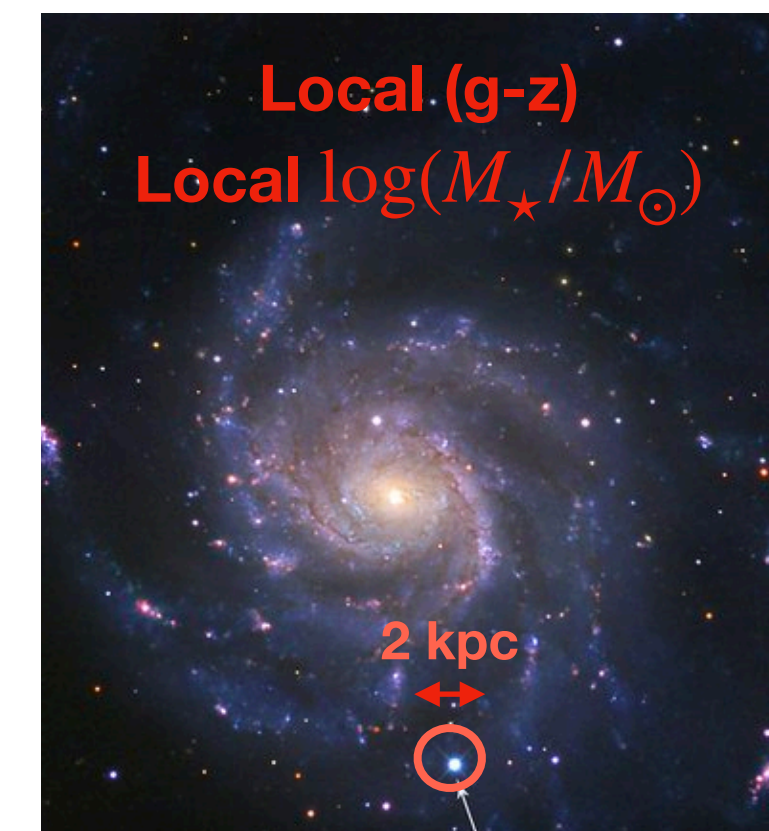
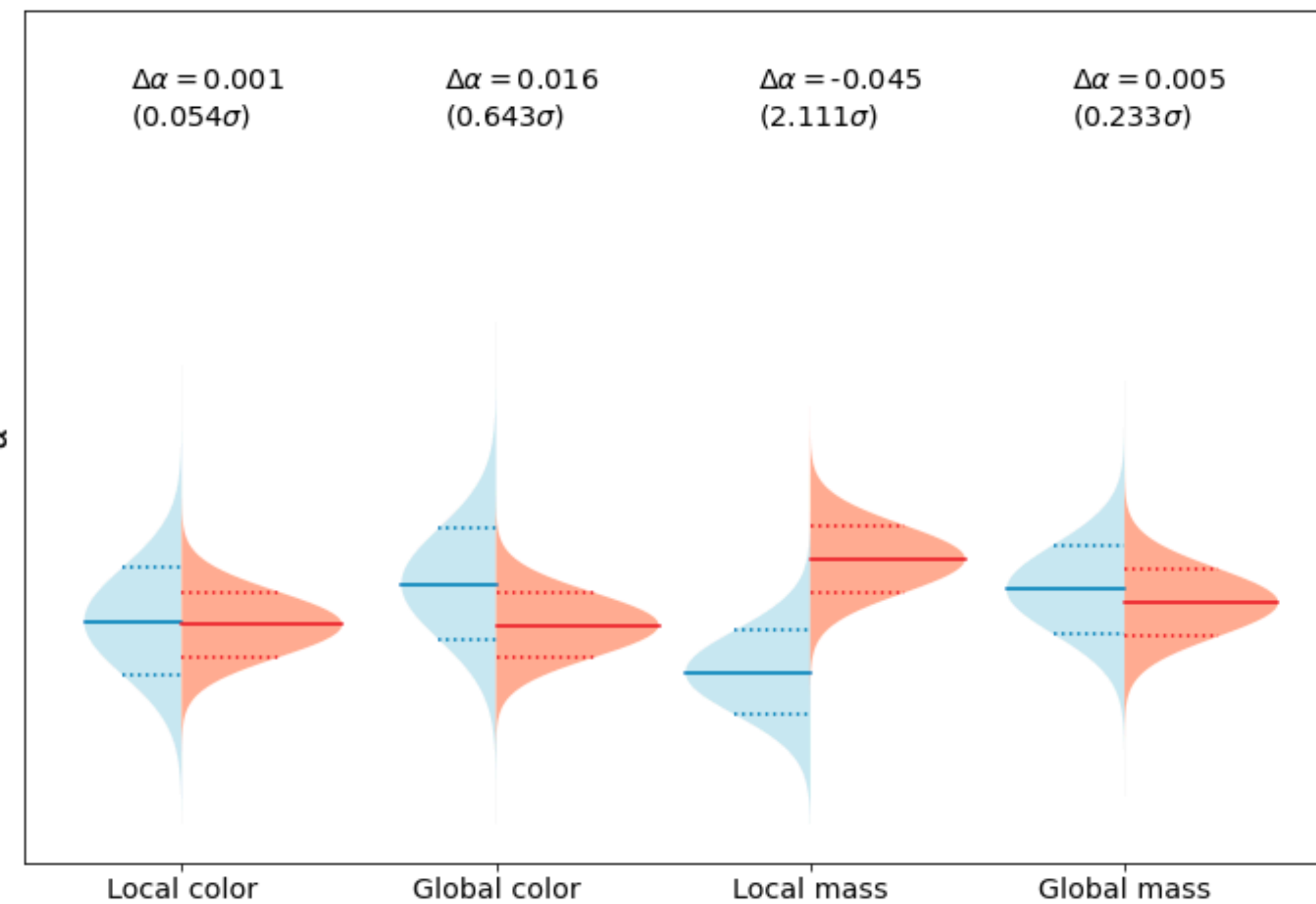
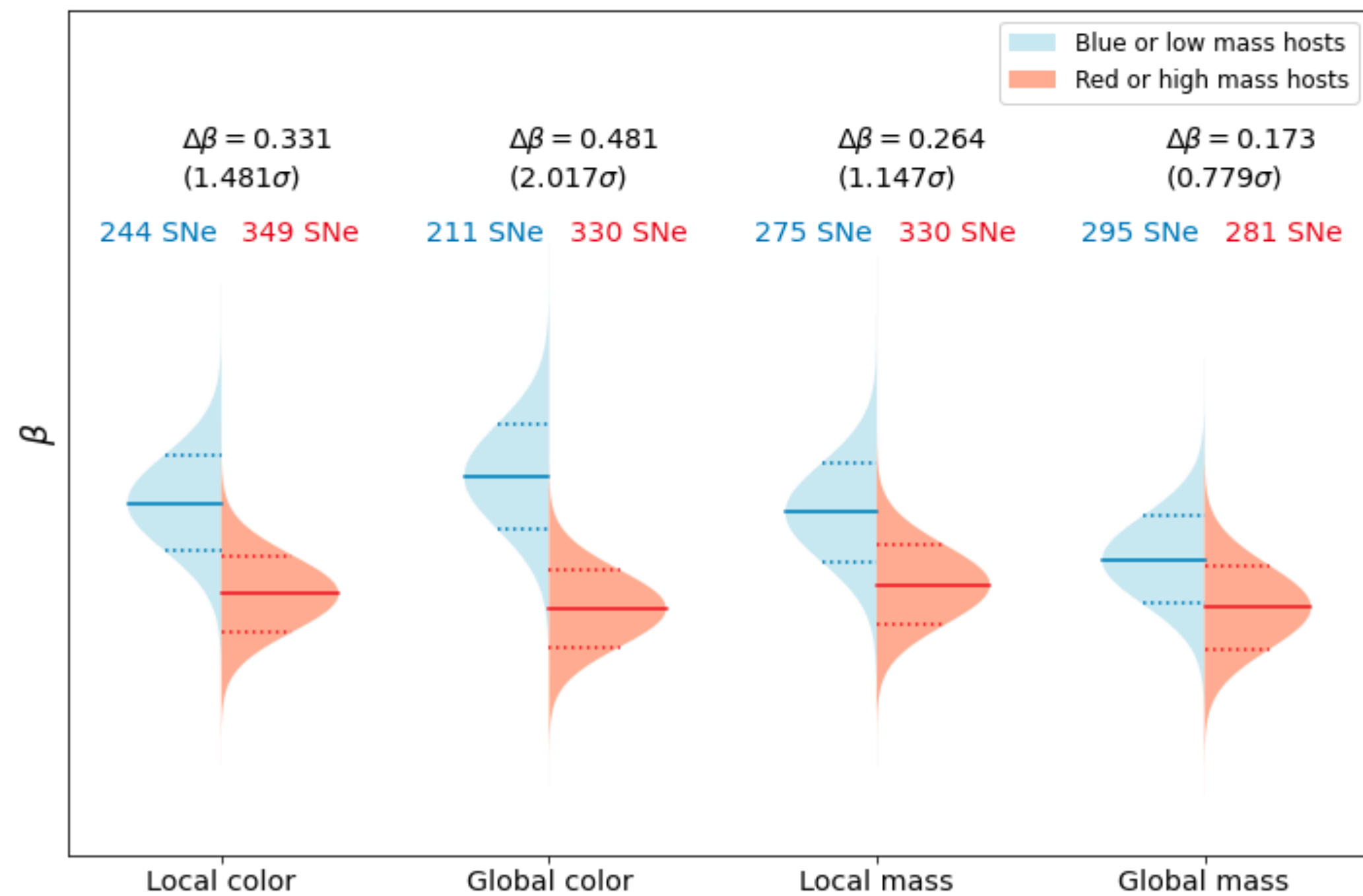
Model from Nicolas et al (2021)



Model from Brout & Scolnic (2020)

Is standardisation dependant on environment?

$$\Delta m = \beta c + \alpha x_1 + M$$



Credits: B.J. Fulton/
LCOGT/Caltech

To conclude

PhD (2022-2025 @ IP2I, Lyon):

Work on getting the best Hubble diagram possible

