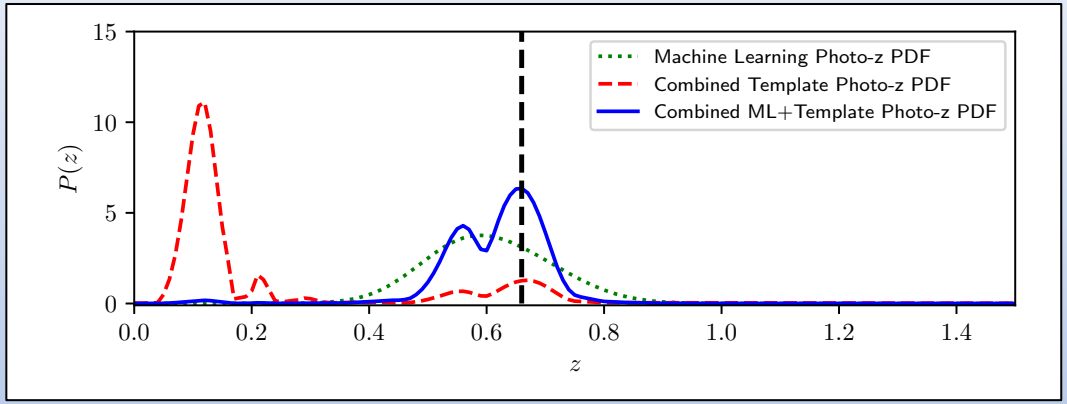
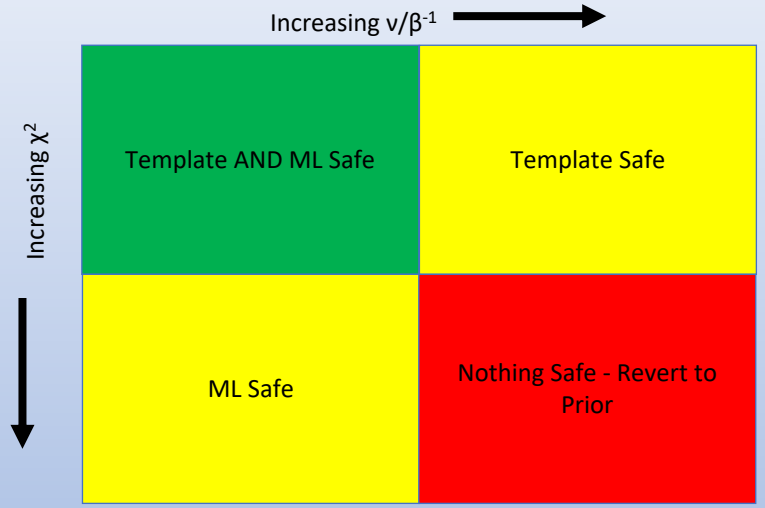
Hybrid machine learning and template based photometric redshifts

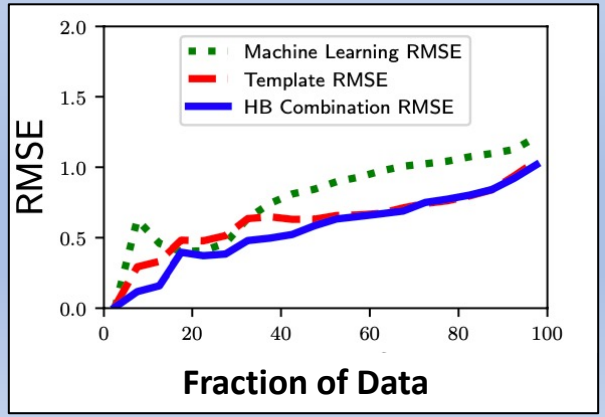
Peter Hatfield, Hintze Fellow, University of Oxford (Peter.hatfield@physics.ox.ac.uk)

ML-IAP2021, Paris (virtually), 18th October 2021

(With Matt Jarvis, Nathan Adams, Rebecca Bowler, Aprajita Verma, David Alonso, Natalia Stylianou, Boris Häußler)







- Photometric redshifts – needed for huge swathes of extragalactic and cosmological science (Salvato, Ilbert and Hoyle 2019)
- Can be calculated in two main ways – template and machine learning based
- Taking "the best of both worlds" can out-perform each method individually; see Duncan et al, 2018 and Hatfield et al., 2020
- Hybrid photo-z implemented for 2.7 million galaxies over COSMOS and XMM-LSS with deep VISTA and HSC data – to be released soon