

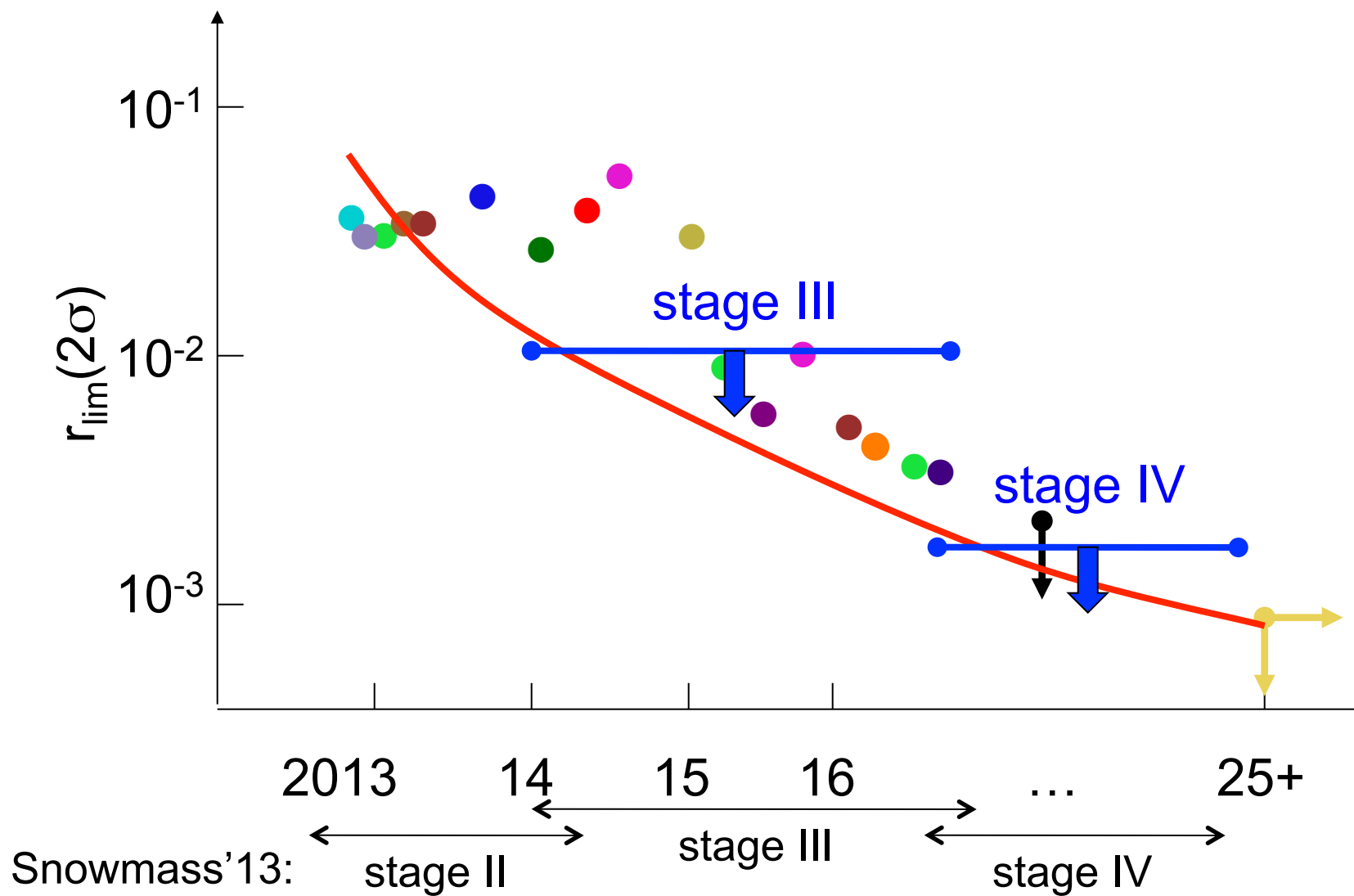


Sub-orbital CMB B-mode experiments as of 2014 ... a (selective) summary

Radek Stompor and Michel Piat (APC)

Prediction is very difficult, especially if it's about the future.
– Niels Bohr

Sensitivity - constraints on r (as seen in 2012)



- Recent past and present:

- kilo-pixel arrays (of TESs) deployed and successfully operated (balloon, ground);
- sub-10 μ K-arcmin sensitivity achieved (small patches);
- (indirect) detections of the lensing B-modes (SPTpol, POLARBEAR);
- Not systematics limited.

Stage II

- Future:

- $O(10^4)$ detectors, 5 μ K-arcmin over $O(10^2 \text{deg})$ with resolution $\leq 5'$:
 $\rightarrow \sigma(r) \approx O(10^{-2})$ by 2017 (CMB-S3);
- $O(10^5)$ detectors 1 μ K-arcmin over 50% of the sky with resolution $\leq 3'$:
 $\rightarrow \sigma(r) \approx O(10^{-3})$ by 2025 (CMB-S4).

Stage III

Stage IV