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γ -type E and B modes of the Sunyaev Zel'dovich effect from reionisation and post reionisation epochs.

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We study the E and B mode polarisation of the cosmic microwave background (CMB) originating from the transverse peculiar velocity of free electrons during reionisation and post reionisation era. Interestingly, apart from having a blackbody part, the spectrum also contains a Sunyaev Zel'dovich (SZ) type (γ -type) distortion, which makes it distinguishable from primordial polarisation as well as from other secondary sources, such as gravitational lensing. Furthermore, it is also differentiable from other γ -type signals such as from the thermal SZ effect as it involves polarised radiation. The E and B modes of γ -type distortion provide a way to beat the cosmic variance of primary CMB anisotropies and are an independent measurement of the cosmological parameters.

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