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Revisiting FIRAS in 2025: new baryonic feedback constraints from CMB spectral distortions

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Measurements of spectral distortions of the CMB are one of the pillars on which we built our standard cosmological model. While measurements of CMB anisotropies have massively improved since their discovery, CMB spectral distortion were last measured by the COBE/FIRAS mission in the 1990s over the full sky. I will show how a re-analysis of archival data of COBE/FIRAS using modern foreground cleaning techniques allowed us to improve by 2-to-3 times the original FIRAS constraints on CMB spectral distortions. I will show in particular how our new results on y distortions together with modern hydrodynamical simulations and implicit likelihood techniques can be used to constrain baryonic feedback processes in galaxy formation, and inform future analyses of large-scale structure data from e.g. Euclid. I will then discuss how the prospects for new experiments like BISOU or FOSSIL are particularly promising in light of these results.

Auteur: FABBIAN, Giulio (Institut d'Astrophysique Spatiale (IAS))

Orateur: FABBIAN, Giulio (Institut d'Astrophysique Spatiale (IAS))

Classification de Session: CMB results and analysis