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Commander4 – massively parallel end-to-end Bayesian CMB analysis

Friday, 12 July 2024 16:10 (20 minutes)

I will present a recently funded Open Science ERC AdG program that aims to implement a single massively parallel end-to-end framework called “Commander4” for the joint analysis of past, present and future CMB experiments. This framework will build on the existing Commander code that was used by Planck for component separation, and subsequently generalized by the BeyondPlanck and Cosmoglobe projects to derive new state-of-the-art frequency maps for Planck LFI, WMAP and DIRBE. However, the existing code only scales well up to O(100) computing cores. Commander4 aims to improve this scaling to O(100,000) cores, as required for next-generation experiments such as Simons Observatory and LiteBIRD. The first application of this new code, however, will be a re-analysis of the raw uncalibrated Planck HFI time-ordered data, and this will be organized as part of the larger Cosmoglobe effort. All interested parties are warmly invited to join this work, both on the Commander4 framework itself and Planck HFI.

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