BLIND SOURCE SEPARATION IN ASTROPHYSICS

JÉRÔME BOBIN

ABSTRACT. In the last decade, blind source separation has taken the lion share for the analysis of multispectral data in fields ranging from biomedical imaging to remote sensing. In the field of astrophysics, the most recent sky surveys (Fermi, Planck to only name two) all providemulti-wavelengths data which need to be analyzed efficiently. A particular challenging example is the extraction of the cosmological microwave background (CMB) from the microwave data provided by the ESA/Planck space mission. The CMB is an incredibly rich source of information for the cosmologists. However, its estimation from multi-wavelength data requires solving a (blind) source separation of unprecedented complexity.

In this talk, we will review the main component separation methods used so far in astrophysics with a particular focus on recently introduced sparsity-based. It will be illustrated with applications to the estimation of CMB from Planck data.

CEA SACLAY, FRANCE.
E-mail address: jerome.bobin@cea.fr