

« CHAIRE ANDRÉ AISENSTADT 2009 — UNE SÉRIE DE CONFÉRENCES »  
14–18 SEPTEMBRE 2009

“ANDRÉ AISENSTADT CHAIR 2009 — A SERIES OF LECTURES”  
SEPTEMBER 14–18, 2009

## Dictionary learning and source separation

STÉPHANE MALLAT

CMAP  
École Polytechnique  
91128 Palaiseau Cedex  
FRANCE

`stephane.mallat@polytechnique.fr`

---

A dictionary can be learned to optimize sparse signal representations for inverse problems. Despite the lack of mathematical results, numerical calculations results show that such algorithms are efficient in a large number of cases. The course finishes with an overview of source separation algorithms using sparsity prior, to separate embedded signals such as stereo sounds or multiple sources in medical or physiological signals.

### Reference

”A Wavelet Tour of Signal Processing : The Sparse Way”, S. Mallat, Academic Press, 2008 ([www.wavelet-tour.com](http://www.wavelet-tour.com)).