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Inverse Problems and Imaging

## Non-negative matrix factorization with sparsity and MALDI Imaging

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### **Abstract:**

Applications in hyperspectral imaging are purely disastrous in terms of information overflow. A particularly high-dimensional example are medical/pharmaceutical applications in mass spectrometric imaging which has up to  $10^6$  'colour' channels.

We will discuss an application in digital pathology and develop the necessary mathematical theory for data reduction via basis learning (non-negative matrix factorization). Here we employ multiplicative algorithms based on surrogate functionals with a priori information entering as additional penalty terms.

This is joint work with Delf Lachmund.