Inverse problems
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For the lecture session

o What is an inverse problem ?

       The well known examples of deconvolution

       Intuitives Matricial and Frequential approaches

o Inverse problems are ill posed problems

       What is an ill posed problem ?

       Generalized inverse solution, SVD decomposition, links
with spectral division

o Regularization

       Truncated SVD

       Iterative methods

       Regularization as a compromise : the penalisation approach

o Data analysis and estimation

       Extension of the penalisation approach,

       Accounting forstatistical model on the noise

       Accounting for statistical model on the object

       Statistical tools

For the hands-on session

Test of different methods on synthetics examples :

o SVD and frequential

o Classical regularization methods : TSVD, Wiener filtering...

o Penalisation approach...