Dimensionality Reduced Plug and Play Priors for Improving Limited data Photoacoustic Tomography

This MATLAB code was used as part of the work presented in

**Navchetan Awasthi, Sandeep Kumar Kalva, Manojit Pramanik, Phaneendra K. Yalavarthy, “Dimensionality Reduced Plug and Play Priors for Improving Limited data Photoacoustic Tomography,”(Under Review in IEEE Journal of Selected topics in Quantum Electronics)**

**\*\*The raw measurement data for the experimental experiments is not provided and can be requested.**

**\*\*\*Please contact if you find any mistakes or if you need any help regarding the codes.**

**Matlab Codes**: (requires [SALSA\_v2.0](http://www.google.com/url?q=http%3A%2F%2Fcascais.lx.it.pt%2F~mafonso%2Fsalsa.html&sa=D&sntz=1&usg=AFQjCNHuqiu8jZpRh85pdxtAwBJ-IBbr2w))

#The codes for generating the data and TV can be found at [patextrapolation](https://sites.google.com/site/sercmig/home/patextrapolation) site.

#Matlab implementation for generating result of all the numerical phantoms : Generating\_All\_phantom\_data\_Results.m

#Matlab implementation for comparing all the results for the phantom images : all\_comparisons.m

#Matlab implementation for TV denoising : perform\_tv\_denoising.m

#Supplementary file for perform\_tv\_denoising : compute\_total\_variation.m

#Matlab Implementation of Lanczos Tikhonov Heuristic and BPD\_LSQR methods:[demo\_bpd\_lsqr\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A342a012c636c1e25&sa=D&sntz=1&usg=AFQjCNFrVUB4qrnn7dhQ7kDoGYIlFTQybQ)

# Supplementary files required : [bpd\_lsqr.m](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjEyMTJiYzU5ZjExOGQyNDI) , [bpd\_salsa\_sparsemtx.m](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjFlMGI3NjUwNDJlNjk5Njk) , [lsqr\_b\_hybrid.m](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjE0NzI3YWZhZjgyNzI1ZGQ) , [pythag.m](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjQyY2JlYzAzNjhmMjMzYWE) , [soft.m](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzZXJjbWlnfGd4OjZlZGZiODcwMTY4MmM3N2E)