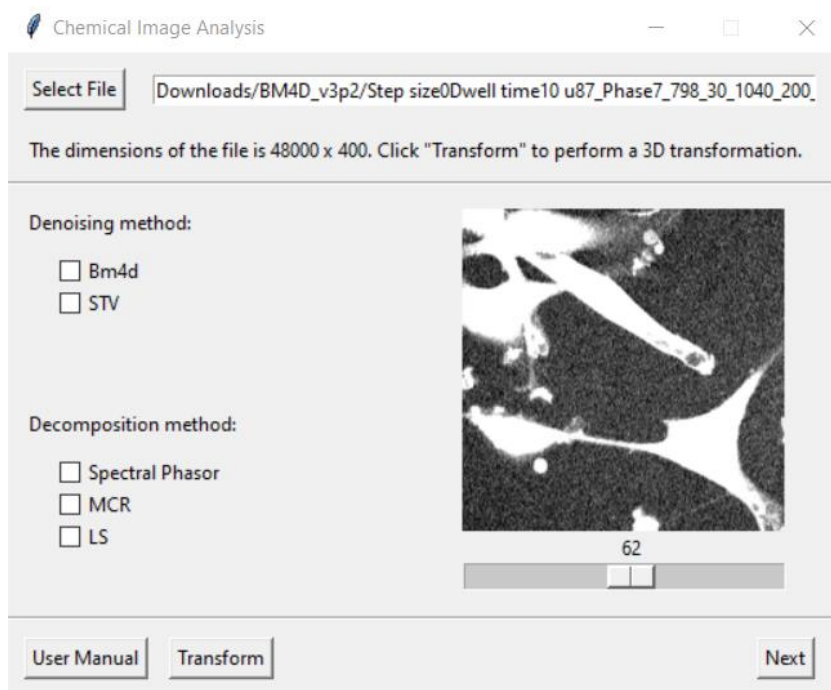


User Manual - Chemical Image Analysis

A. File Selection Page

1. Select File (button): pick an input *.tif* or *.txt* file or enter the file path manually
2. Denoising method (checkbox):
 - I. Bm4d (Block Matching 4D filtering)
 - II. STV (Spectral Total Variation)
3. Decomposition method (checkbox):
 - I. Spectral Phasor
 - II. MCR (Multivariate Curve Resolution and Alternating Least Square Fitting)
 - III. LS (Least Square Fitting)
4. Transform (button): perform a 3D transformation on a 2D image montage (button appears only if the input file is in the *.txt* format)



B. Denoising Page

B1. Denoising - Bm4d

1. Parameters (with defaults showing):

I. Distribution (dropdown list)

- a. Gauss – Gaussian distribution
- b. Rice – Rician distribution

II. Profile (dropdown list)

- a. mp – modified profile
- b. np – normal profile
- c. lc – low complexity

III. Do wiener (dropdown list): enable Wiener filtering

IV. Verbose (dropdown list): verbose mode

V. Estimate Sigma (dropdown list): enable sigma estimation

VI. Crop Phantom (dropdown list): experiment on smaller phantom

VII. Variable Noise (dropdown list): enable spatially varying noise

VIII. Sigma (entry): enter sigma value manually

IX. Noise Factor (entry): enter noise factor manually

2. Denoise (button): begin bm4d denoising

B2. Denoising – STV

1. Parameters (with defaults showing):
 - I. tv method (total variation method): ‘aniso’ or ‘iso’
 - II. rho_r: initial penalty parameter for $\|u - Df\|$
 - III. rho_o: initial penalty parameter for $\|f - g - r\|$
 - IV. beta: regularization parameter [a b c] for weighted TV norm
 - V. gamma: update constant for rho_r
 - VI. max iteration: maximum iteration
 - VII. alpha: constant that determines constraint violation
 - VIII. tolerance: tolerance level on relative change
2. Denoise (button): begin STV denoising