

Data type and naming

Data type: MATLAB cell array

Naming: data_phi_4.98%_phi_s_0.53%.mat



Read in

```
load('B:\data_phi_4.98%_phi_s_0.53%.mat')
```

Workspace

Name ▲	Value
data	3x2 cell

Structure

naming

	1	2			
data{1, 1}	1	'trajectories'	22x6 cell	data{1, 2}	trajectories
data{2, 1}	2	'one-point'	3x6 cell	data{2, 2}	one-point dynamic
data{3, 1}	3	'two-point'	3x7 cell	data{3, 2}	two-point dynamic

data{1, 2}: trajectories

data{1, 2} ✕

data{1, 2}

	1	2	3	4	5	6	
1	'kind'	'matrix volume fraction'	'tracer volume fraction'	'acquisition time'	'measurement date'	'trajectories'	
2	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3194213x4 double	data{1, 2}{2, 6}
3	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3278159x4 double	data{1, 2}{3, 6}
4	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3366030x4 double	data{1, 2}{4, 6}
5	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3507477x4 double	
6	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3403140x4 double	
7	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	2900770x4 double	
8	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3345755x4 double	
9	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	2827757x4 double	
10	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3472684x4 double	
11	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3604947x4 double	
12	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3602538x4 double	
13	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3746171x4 double	
14	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3848483x4 double	
15	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3854580x4 double	
16	'tracer'	0.0498	0.0053	'0.034 s'	'210421'	3754931x4 double	
17	'tracer'	0.0498	0.0053	'0.034 s'	'220421'	4288765x4 double	
18	'tracer'	0.0498	0.0053	'0.034 s'	'220421'	4159485x4 double	
19	'tracer'	0.0498	0.0053	'0.034 s'	'220421'	4311922x4 double	
20	'tracer'	0.0498	0.0053	'0.034 s'	'220421'	4418162x4 double	
21	'tracer'	0.0498	0.0053	'0.034 s'	'220421'	4334379x4 double	
22	'matrix'	0.0498	0.0053	'0.034 s'	'210421'	18957x4 double	data{1, 2}{22, 6}

tracer pixel-pitch:
0.105042 μm / pixel.

matrix pixel-pitch:
0.105042 μm / pixel for matrix volume fractions 0.0498 till 0.5006.
0.280112 μm / pixel for matrix volume fractions 0.5659 till 0.5887.

file structure: tracer trajectories

data{1, 2}{2, 6} (:, 1): x-position in pixels.
data{1, 2}{2, 6} (:, 2): y-position in pixels.
data{1, 2}{2, 6} (:, 3): Frame.
data{1, 2}{2, 6} (:, 4): Particle ID.

file structure: matrix trajectories

data{1, 2}{22, 6} (:, 1): x-position in pixels.
data{1, 2}{22, 6} (:, 2): y-position in pixels.
data{1, 2}{22, 6} (:, 3): Frame.
data{1, 2}{22, 6} (:, 4): Particle ID.

data{2, 2}: one-point dynamic

	1	2	3	4	5	6
1 'kind'	'matrix volume fraction'	'tracer volume fraction'	'acquisition time'	'number of areas'	'one-point dynamic'	
2 'tracer'	0.0498	0.0053	'0.034 s'	20	25x31 double	data{2, 2}{2, 6}
3 'matrix'	0.0498	0.0053	'0.034 s'	1	34x16 double	data{2, 2}{3, 6}

file structure: tracer one-point dynamic

data{2, 2}{2, 6}{:, 1}: Lag time in frames.
 data{2, 2}{2, 6}{:, 2}: Mean number of data points.
 data{2, 2}{2, 6}{:, 3}: Standard deviation of the mean number of data points.
 data{2, 2}{2, 6}{:, 4}: Mean displacement in x-direction.
 data{2, 2}{2, 6}{:, 5}: Mean displacement in y-direction.
 data{2, 2}{2, 6}{:, 6}: Mean square displacement in x-direction.
 data{2, 2}{2, 6}{:, 7}: Mean square displacement in y-direction.
 data{2, 2}{2, 6}{:, 8}: 2D mean square displacement.
 data{2, 2}{2, 6}{:, 9}: Mean of the fourth power of the displacements in x-direction.
 data{2, 2}{2, 6}{:, 10}: Mean of the fourth power of the displacements in y-direction.
 data{2, 2}{2, 6}{:, 11}: Mean of the fourth power of the displacements in 2D.
 data{2, 2}{2, 6}{:, 12}: Variance of the displacements in x-direction.
 data{2, 2}{2, 6}{:, 13}: Variance of the displacements in y-direction.
 data{2, 2}{2, 6}{:, 14}: 2D variance.
 data{2, 2}{2, 6}{:, 15}: Non-Gaussian parameter of the displacements in x-direction.
 data{2, 2}{2, 6}{:, 16}: Non-Gaussian parameter of the displacements in y-direction.
 data{2, 2}{2, 6}{:, 17}: 2D non-Gaussian parameter.
 data{2, 2}{2, 6}{:, 18}: The corresponding standard deviation for data{2, 2}{2, 6}{:, 4}.
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 data{2, 2}{2, 6}{:, 31}: The corresponding standard deviation for data{2, 2}{2, 6}{:, 17}.

The displacements are in μm .

The standard deviations are determined over the number of areas (measurements).

file structure: matrix one-point dynamic

data{2, 2}{3, 6}{:, 1}: Lag time in frames.
 data{2, 2}{3, 6}{:, 2}: Used number of data points.
 data{2, 2}{3, 6}{:, 3}: Mean displacement in x-direction.
 data{2, 2}{3, 6}{:, 4}: Mean displacement in y-direction.
 data{2, 2}{3, 6}{:, 5}: Mean square displacement in x-direction.
 data{2, 2}{3, 6}{:, 6}: Mean square displacement in y-direction.
 data{2, 2}{3, 6}{:, 7}: 2D mean square displacement.
 data{2, 2}{3, 6}{:, 8}: Mean of the fourth power of the displacements in x-direction.
 data{2, 2}{3, 6}{:, 9}: Mean of the fourth power of the displacements in y-direction.
 data{2, 2}{3, 6}{:, 10}: Mean of the fourth power of the displacements in 2D.
 data{2, 2}{3, 6}{:, 11}: Variance of the displacements in x-direction.
 data{2, 2}{3, 6}{:, 12}: Variance of the displacements in y-direction.
 data{2, 2}{3, 6}{:, 13}: 2D variance.
 data{2, 2}{3, 6}{:, 14}: Non-Gaussian parameter of the displacements in x-direction.
 data{2, 2}{3, 6}{:, 15}: Non-Gaussian parameter of the displacements in y-direction.
 data{2, 2}{3, 6}{:, 16}: 2D non-Gaussian parameter.

The displacements are in μm .

data{3, 2}: two-point dynamic

	1	2	3	4	5	6	7	
1	'kind'	'matrix volume fraction'	'tracer volume fraction'	'acquisition time'	'number of areas'	'bin width'	'two-point dynamic'	
2	'tracer'	0.0498	0.0053	'0.034 s'	20	'0.01 μm '	164611x7 single	data{3, 2}{2, 7}
3	'tracer'	0.0498	0.0053	'0.034 s'	20	'0.1 μm '	16780x7 single	data{3, 2}{3, 7}

file structure: tracer two-point dynamic

- data{3, 2}{2, 7}(:,1): Lag time in frames.
- data{3, 2}{2, 7}(:,2): Separation r in μm .
- data{3, 2}{2, 7}(:,3): Used number of data points.
- data{3, 2}{2, 7}(:,4): Longitudinal two-point correlation in μm squared.
- data{3, 2}{2, 7}(:,5): Transversal two-point correlation in μm squared.
- data{3, 2}{2, 7}(:,6): Standard deviation of the longitudinal two-point correlation in μm squared.
- data{3, 2}{2, 7}(:,7): Standard deviation of the transversal two-point correlation in μm squared.

The standard deviations are determined over the number of areas (measurements).