R-factor: Upload comsol results

Introduction

This script uploads the results of comsol modeling software

Authors: Ivan Abakumov

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E-mail: ivan.abakumov@fu-berlin.de

```
clear; close all; clc;
mlibfolder = '/home/ivan/Desktop/MLIB';
path(path, mlibfolder);
add_mlib_path;
```

Set size of the grid

```
G=GridClass;

% [m]         [m]           [m]           [s]
G.x0=0;      G.y0=0;      G.z0=0;        G.t0 = 0.00;           % initial point
G.nx=2001;   G.ny=1;      G.nz=601;      G.nt = 101;            % grid size
G.dx=10;     G.dy=0;      G.dz=10;       G.dt = 0.1;            % grid step (meter)

G.gridInfo;
```

```
Information about grid:
x0=0, dx=10, Nx=2001.
y0=0, dy=0, Ny=1.
z0=0, dz=10, Nz=601.
t0=0, dt=0.1, Nt=101.
```

```
G.setGrid;
Gold = oldGrid(G);
```

Load Comsol results

Upload pressure

```
filename = '/home/ivan/Desktop/Comsol/pressure_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.pressure = zeros(G.nx, G.nz, G.nt);
XX = data(:,1);
ZZ = data(:,2);
xx = unique(XX);
zz = unique(ZZ);
for i = 1:G.nt
    Model.pressure(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
```

```
end
clear data
```

Upload displacement in x direction

```
filename = '/home/ivan/Desktop/Comsol/disp_x_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.disp_x = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.disp_x(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload displacement in y direction

```
filename = '/home/ivan/Desktop/Comsol/disp_y_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.disp_y = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.disp_y(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload strain, x component

```
filename = '/home/ivan/Desktop/Comsol/strain_x_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.strain_x = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.strain_x(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload strain, y component

```
filename = '/home/ivan/Desktop/Comsol/strain_y_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.strain_y = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.strain_y(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload strain, xy component

```
filename = '/home/ivan/Desktop/Comsol/strain_xy_model1.csv';
```

```
data = read_comsol_csv_files(filename, 10, 1202610);
Model.strain_xy = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.strain_xy(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload stress, x component

```
filename = '/home/ivan/Desktop/Comsol/stress_x_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.stress_x = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.stress_x(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload stress, y component

```
filename = '/home/ivan/Desktop/Comsol/stress_y_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.stress_y = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.stress_y(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Upload stress, xy component

```
filename = '/home/ivan/Desktop/Comsol/stress_xy_model1.csv';
data = read_comsol_csv_files(filename, 10, 1202610);
Model.stress_xy = zeros(G.nx, G.nz, G.nt);
for i = 1:G.nt
    Model.stress_xy(:,:,i) = reshape(data(:,i+2),G.nx,G.nz);
end
clear data
```

Save results

```
save('/home/ivan/Desktop/Comsol/My_model_4_results.mat','Model','-v7.3');
save('/home/ivan/Desktop/Comsol/My_model_4_G_file.mat','G');
```