Instructions to get the parareal algorithm running on Midway3:

1)Login to Midway3 cluster with your CNetID .

2) Copy files from https://github.com/rcc-uchicago/Parallel_in_time.git

git clone https://github.com/rcc-uchicago/Parallel_in_time.git

3) Go to simulation directory:
cd **PR_workshop_2d_cond_MW3/Run_IPS/2D_cond/RCC_MW2/**

4) **module load python**
#Create the conda environment (needs to be done once)
conda create -n python_2.7
source activate python_2.7
#Following command – required only once.
conda install python=2.7.13

4) Files you need to modify:
2dCond_parareal.conf & run_parareal.sbatch

5) Note: In **run_parareal.sbatch,**
You may modify to own account/group
For now, if you have your own PI-account or are a member of a group, please use:
#SBATCH --account=pi-*account*

If you don't have access to a PI account, please let me know.

6) In **run_parareal.sbatch** ,update:
IPS_ROOT = … *Path to* /PR_workshop_2d_cond_MW3/ipsframework-code/framework
As well as path to .conf file

7) In **2dCond_parareal.conf,** update:
IPS_ROOT = *…path to* PR_workshop_2d_cond_MW3/ipsframework-code
&
SIM_ROOT = *…path to* PR_workshop_2d_cond_MW3/Run_IPS/2D_cond/RCC_MW2

8) **sbatch run_parareal.sbatch**

Sit back, relax and watch time being sliced and parallelized.

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8)**Executables** for codes on 2D conduction equation are in:
/project/rcc/dsamaddar/PR_workshop_2d_cond_MW3/2DCond_bin/
F_Run, G_Run, PR_Conv , PR_Corr.

*If these paths are modified, you need to update **2dCond_parareal.conf***

9) **Components or codes** for 2D conduction code are in
/project/rcc/dsamaddar/PR_workshop_2d_cond_MW3/codes_2D_cond
F_RUN, G_RUN , PR_conv_2d & PR_corr_2d
To compile, for example:
gfortran conduction_2d_FRun.f90

***If you recompile any of these codes, update the executable in respective directories in** PR_workshop_2d_cond_MW3/2DCond_bin/…*

10) To play with the parareal algorithm, modify:
In 2dCond_parareal.conf
MAX_slices=Total slices solved per simulation
NT_slice=window for dynamic slicing, i.e, eg. NT_slice=8 means simulation starts with 8 processors, then adds as many slices converge per iteration.

Questions?
Please contact dsamaddar@uchicago.edu

Thank You!