**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.*

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?*

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**Thank You!**

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