This document provides an overview of the implementation of \* standard time stepping method and \* Parareal time stepping

# **SimulationVariables**

of the swe rexi.cpp implementation

- Initialized in main()
- Singleton

### **SimulationInstance**

- Object oriented
- Accesses SimulationVariables

# **Standard time stepping:**

## Serial main()

- Initialize SimulationVariables
- Initialize SimulationInstance
- execute simulation

### **SimulationInstance**

# Parareal time stepping with serial implementation

### **Serial Parareal**

- Initialize SimulationVariables
- Initialize PararealController
- execute simulation

# Parareal\_Controller\_Serial - Initialize array with Parareal\_SimInst. - Initialize SimulationInstances - Execute Parareal simulation - Execute Parareal simulation - Parareal\_SimulationInstance - Parareal\_SimulationInstance - Parareal\_SimulationInstance

**SimulationInstance** 

**SimulationVariables**