

Inputs:

- domain geometry (mesh),
- propagation (e.g., acoustic),
- medium physical properties,
- source (e.g., position),
- choice of frequency,
- boundary conditions.

Parallelism:

the mesh cells
are distributed
among the mpi
processors.

Discretization:

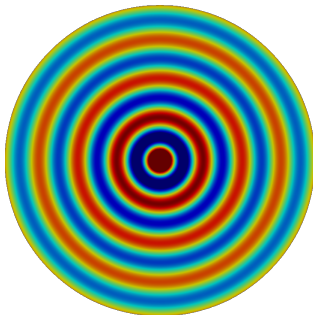
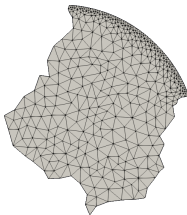
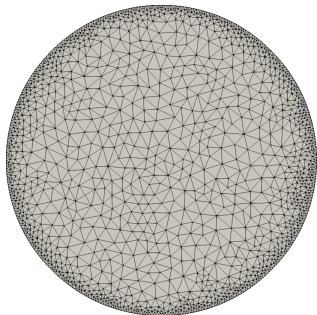
Create the global
matrix associated
with HDG dis-
cretization.

Solver:

Solve the
linear system
with MUMPS.

Save:

Save the
solution.

Illustrations:

Disk-domain of radius 1m, decomposed in 3040 triangle cells. The wave speed and density are constant $c = 0.1\text{ms}^{-1}$, $\rho = 1000\text{kg m}^{-2}$. The point-source is positioned in the center.

Parallelism: one mpi processor handles a part of the domain, non-overlapping with the other ones.

Real part of the pressure field p solution to the acoustic problem (1) at 0.4Hz.