Grid not aligned with gravity acceleration vector

(a)

y

x
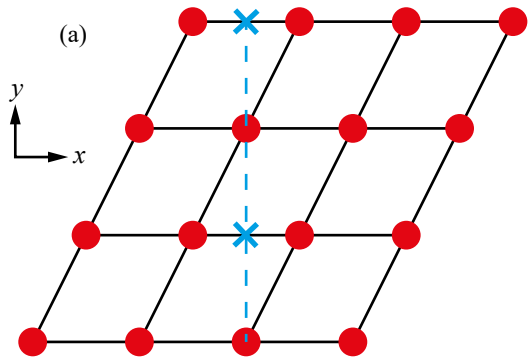
Unstructured mesh

(b)

$\vec{\mathbf{g}}$
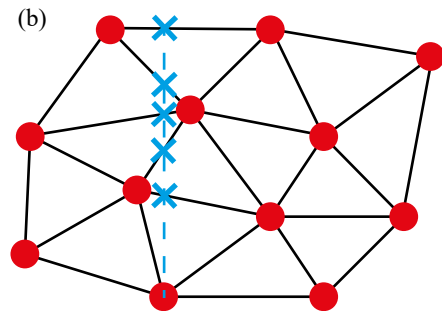
Parallel grid decomposition

(c)

Subdomain 1

Subdomain 2
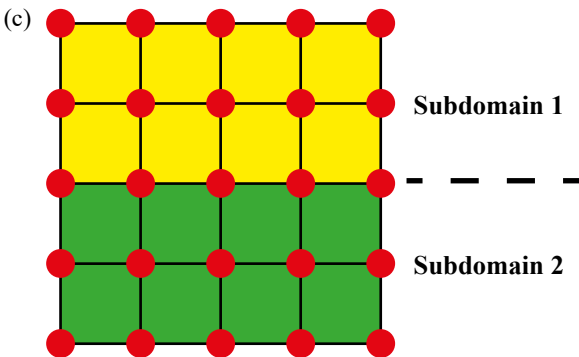
●   Grid nodes

—   Grid representation

┆   Path along which the integration must be performed (aligned with gravity acceleration vector)

✕   Off node location at which density needs to be evaluated for the integration (also requires to evaluate coordinates of these points)