Mathematical model

Partial Differential Equation (PDE)

Geometry model

Numerical model

MoFEM ecosystem

PETSc - manages algebra

Matrices, vectors & many solvers

Interfaced by Discrete Manager (DMMOFEM)

MoFEM - manages discretisation

Finite Elements

Approximation

Algebraic equations —

Integration

Assembly

MoAB - manages topology

Mesh and data

Direct access to internal data structures by tag and connectivity pointers

Design objectives

- scalability & runtime efficiency & memory efficiency (order is solver & problem size dependent)
- extendibility
- extendibility (hack ability)
- scalability
- runtime efficiency
- memory efficiency

- memory efficiency
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- scalability
- extendibility