Algorithm 1 3D model

Require: Computational 3D domain Ω, mesh with edge index (etc), material functions μ, ϵ, σ.

Ensure: Fields $(\mathbf{E_h}, \mathbf{B_h})$

```
Initialization E_0, B_0, k
Construct mass matrix
while tolerance > e do
    for τ = 1, 2, .., T/dt do
        Solve (N_e × N_N)^2 linear system
        Update data
    end for
end while
```

Algorithm 2 Axysimmetric

Require: Computational 2D domain Ω, mesh with edge index (etc), material functions μ, ϵ, σ.

Ensure: Axysimmetric fields $(\mathbf{E_h}, \mathbf{B_h})$

```
Initialization E_0, B_0, k
while tolerance > e do
    for k ∈ {−N_k, .., 0, .., N_k} do
        Construct mass matrix
        for τ = 1, 2, .., T/dt do
            Solve (N_e × N_N)^2 linear system
            Update data
        end for
    end for
end while
```