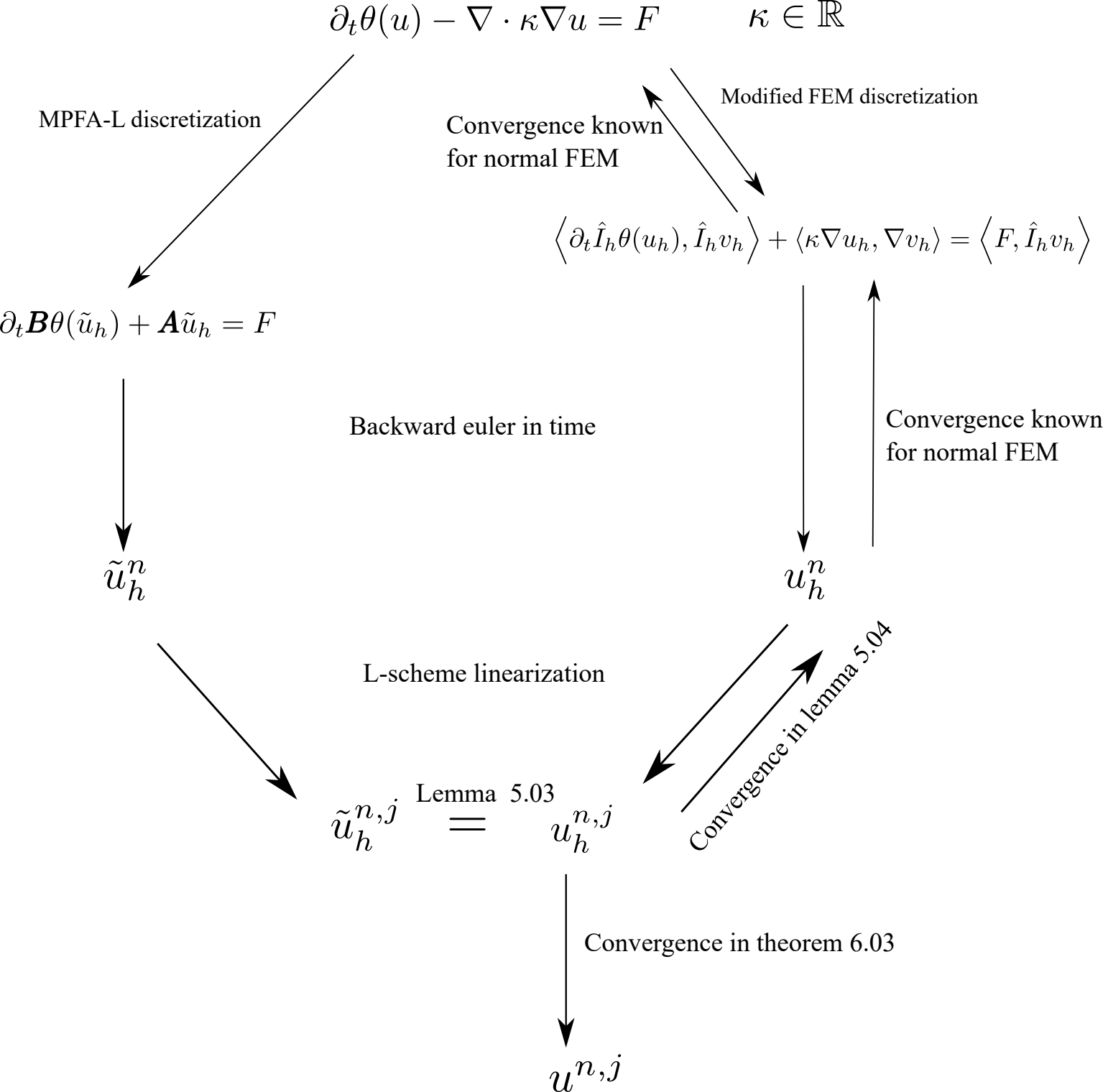
$\partial_t\theta(u) - \nabla \cdot \kappa\nabla u = F \qquad \kappa \in \mathbb{R}$
MPFA-L discretization
Convergence known for normal FEM
Modified FEM discretization
$\left\langle \partial_t \hat{I}_h\theta(u_h), \hat{I}_h v_h \right\rangle + \langle \kappa\nabla u_h, \nabla v_h \rangle = \left\langle F, \hat{I}_h v_h \right\rangle$
$\partial_t \boldsymbol{B}\theta(\tilde{u}_h) + \boldsymbol{A}\tilde{u}_h = F$
Backward euler in time
Convergence known for normal FEM
$\tilde{u}_h^n$
$u_h^n$
L-scheme linearization
Convergence in lemma 5.04
$\tilde{u}_h^{n,j}$
Lemma 5.03
$=$
$u_h^{n,j}$
Convergence in theorem 6.03
$u^{n,j}$