Stationary heat conduction
algebraic formulation, global variables

configuration variables
primal complex in space
dimensions: [θ]
SI units: kelvin

source variables
dual complex in space
dimensions: [ML²T⁻²]
SI units: watt

\[ T_h \]

\[ p_h = f(T_h) \]

Poisson
\[-\lambda \sum_k L_{hk} T_k = p_h \]

\[ \Phi_\alpha = -\lambda \tilde{s}_\alpha G_\alpha \]

Fourier
\[ L_{hk} \triangleq -\sum_\alpha \tilde{d}_{h\alpha} \frac{\tilde{s}_\alpha}{l_\alpha} g_{\alpha h} \]

\[ T_h \] thermodynamic temperature at the point \( \vec{p}_h \)

\[ G_\alpha \] relative temperature associated with \( \vec{l}_\alpha \)

\[ p_h \] heat production rate associated with the dual cell \( \vec{v}_h \)

\[ \Phi_\alpha \] heat current associated with the dual cell \( \vec{s}_\alpha \)

\[ L_{hk} \] discrete Laplacian

\[ \lambda \] thermal conductivity

TCF1-10; http://discretephysics.dica.units.it
tutte le lettere sono nella listOfSymbols.tex