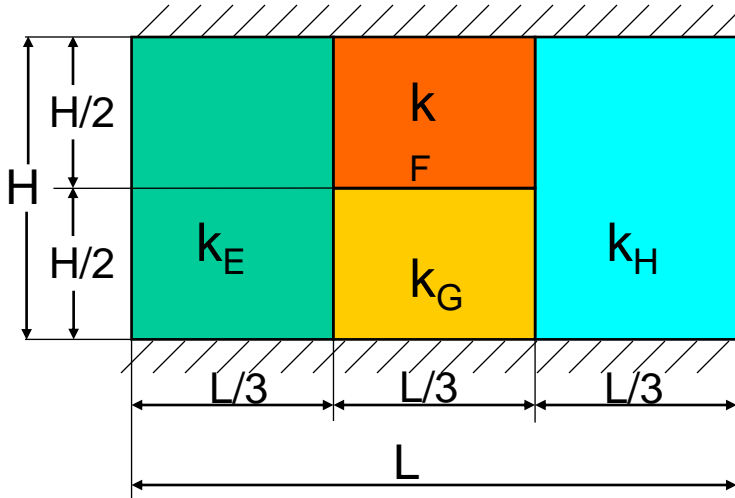


PARETE COMPOSITA SERIE-PARALLELO



$$R_e = (L/3)/(k_e * H) \quad R_f = (L/3)/(k_f * (H/2)) \quad R_g = (L/3)/(k_g * (H/2)) \quad R_h = (L/3)/(k_h * H)$$

$$R_{iso} = R_e + 1/(1/R_g + 1/R_f) + R_h$$

$$R_{adia} = 1/(1/((2 * R_e) + R_g + (2 * R_h))) + 1/((2 * R_e) + R_f + (2 * R_h))$$

Esempio:

$$k_e = 25; \quad k_f = 5; \quad k_g = 100; \quad k_h = 25;$$
$$L = 0.1; \quad H = L/2$$

Otteniamo, con le due formule precedenti:

$$R_{iso} = 0.066 \text{ [K/W]} \text{ (Limite inferiore)}$$

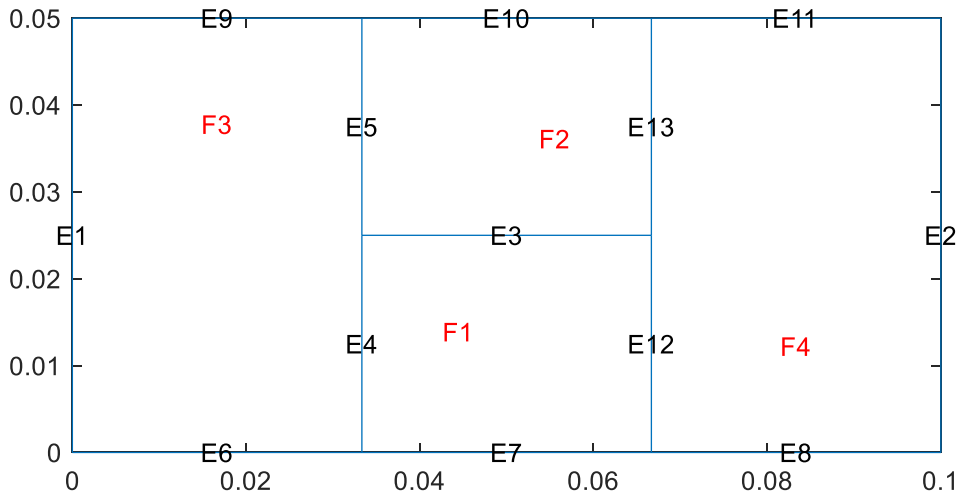
$$R_{adia} = 0.091 \text{ [K/W]} \text{ (Limite superiore)}$$

$$R_{tot} = (R_{iso} + R_{adia})/2 = 0.0785 \text{ [K/W]}$$

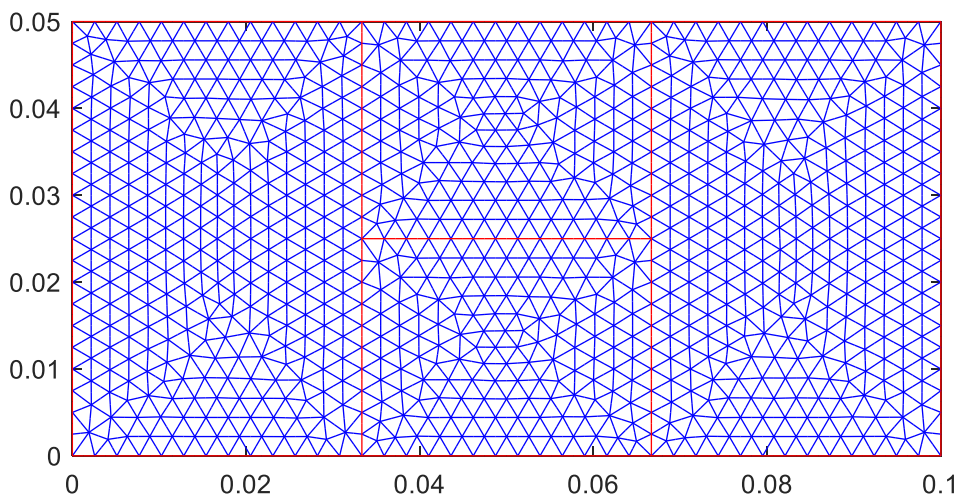
Vediamo la soluzione “esatta”, ottenuta con il Toolbox **MATLAB PDEToolbox**.

PARETE COMPOSITA SERIE-PARALLELO

Dominio

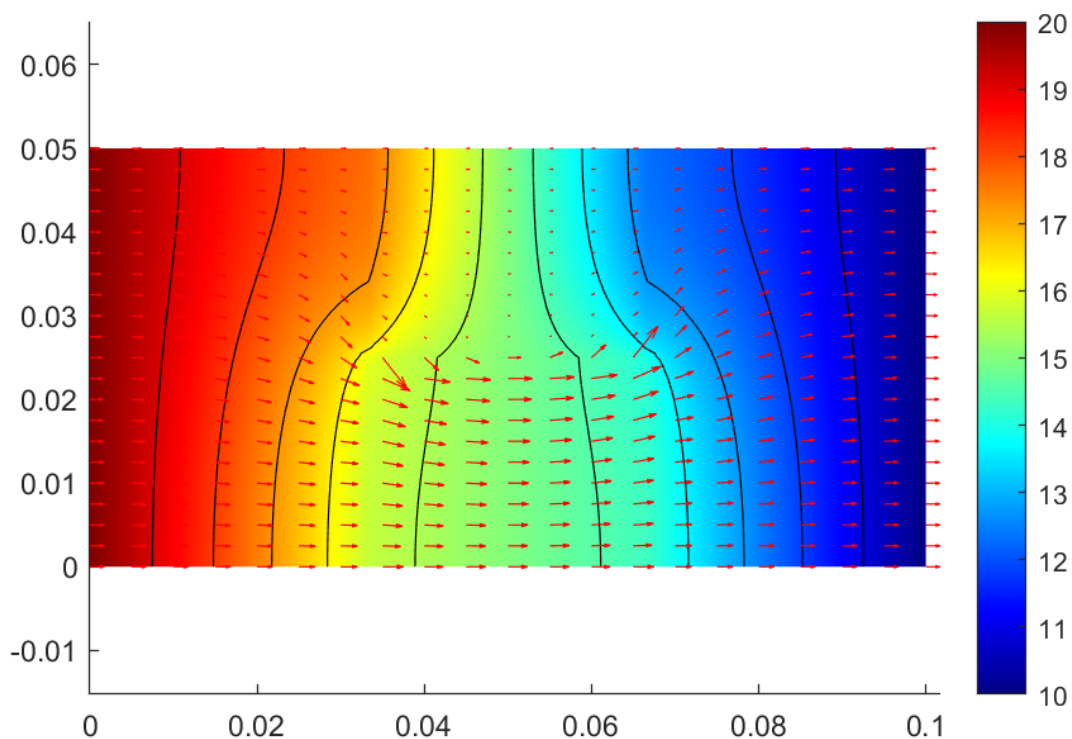


Griglia



PARETE COMPOSITA SERIE-PARALLELO

Soluzione: temperatura e flusso termico



$$R_{\text{tot}} = 0.0767 \text{ [K/W]}$$