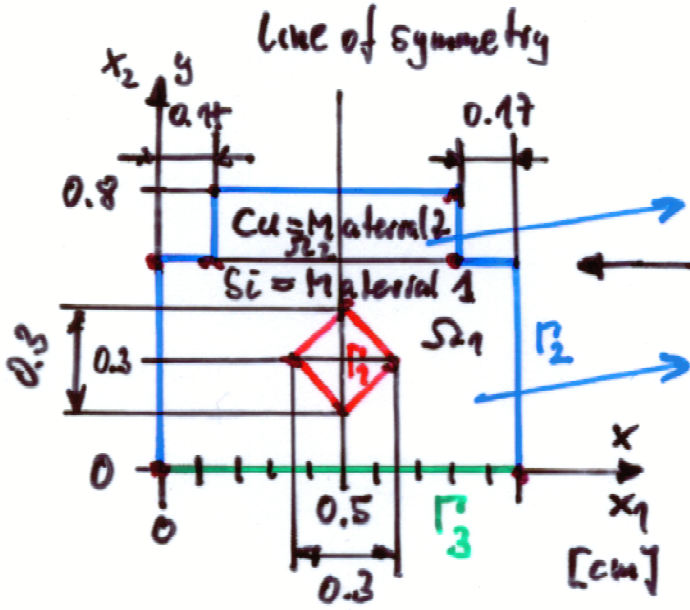
■ Example CHIP:



- $f \equiv 0$ (no heat sources)
- $\alpha \equiv 0$ (heat isolation in z-dir.)
- $\lambda(x) = \lambda_2 = \lambda_{Cu} = 3.95 \left[\frac{W}{cm\,K}\right]$ Cu (copper)

interface Γ_I

- $\lambda(x) = \lambda_1 = \lambda_{Si} = 0.01 \left[\frac{W}{cm\,K}\right]$ Si (Silicon)
- Γ_1 : $g_1 = const = 500\,[K]$

  Γ_2 : $g_2 = 0$ (isolation)

  Γ_3 : $\frac{\partial u}{\partial N} := \lambda_{Si} \frac{\partial u}{\partial n} \equiv$

  $\equiv -\lambda_{Si} \frac{\partial u}{\partial y} = \varkappa (u_0 - u)$

  with $\varkappa = 0.2 \left[\frac{W}{cm^2 K}\right]$

  $u_0 = 300\,[K]$

■ Remarks:

1. $\exists!\, u \in V_g$: (2) are ensured for the given data ($\Rightarrow$ Ex. 2.2)!
2. The solution u has a sharp bend ("Knick") at the interface, i.e. $u \notin H^2(\Omega)$, but only $u \in H^{1+s}(\Omega)$ with some $s < 1/2$!
3. Loss of regularity of the solution u due to
   - corners at Γ, in particular, with inner angles $> \pi$,
   - changes of the BC on Γ,
   - corners in the interfaces Γ_I (this is not the case here!),
   - interface Γ_I meets the boundary Γ:

   $\Rightarrow u \in H^{1+s_i}(\Omega_i)$ with some $s_i : 1/2 < s_i < 1$.