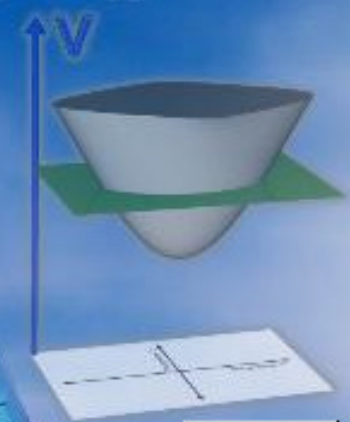


LORD 2.1

LOGICAL R-DETERMINATION



Run

Update 25/01/02

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Thermal systems modelled by RC-networks

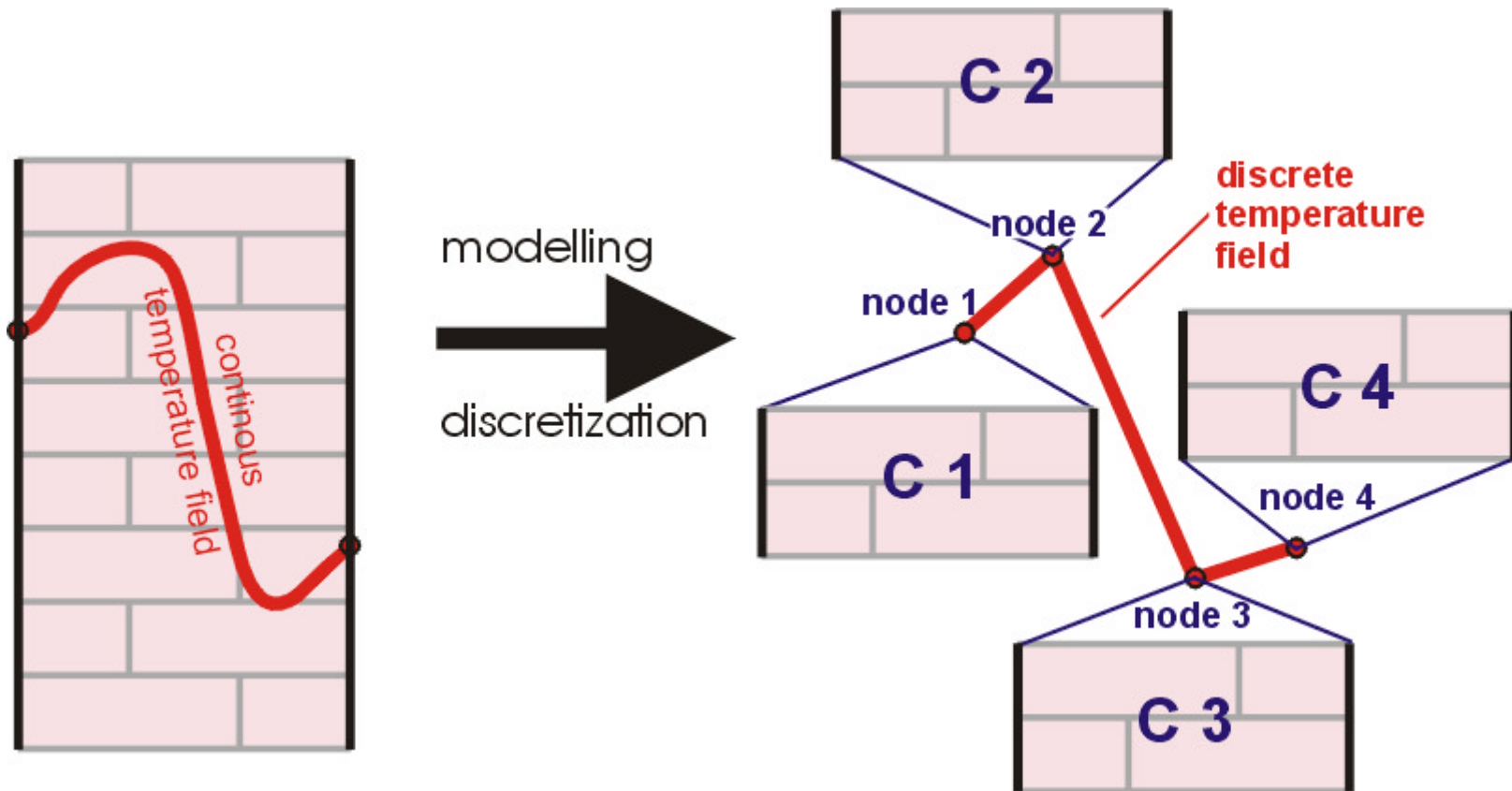
Example: Simple homogenous wall

Law of heat conduction:

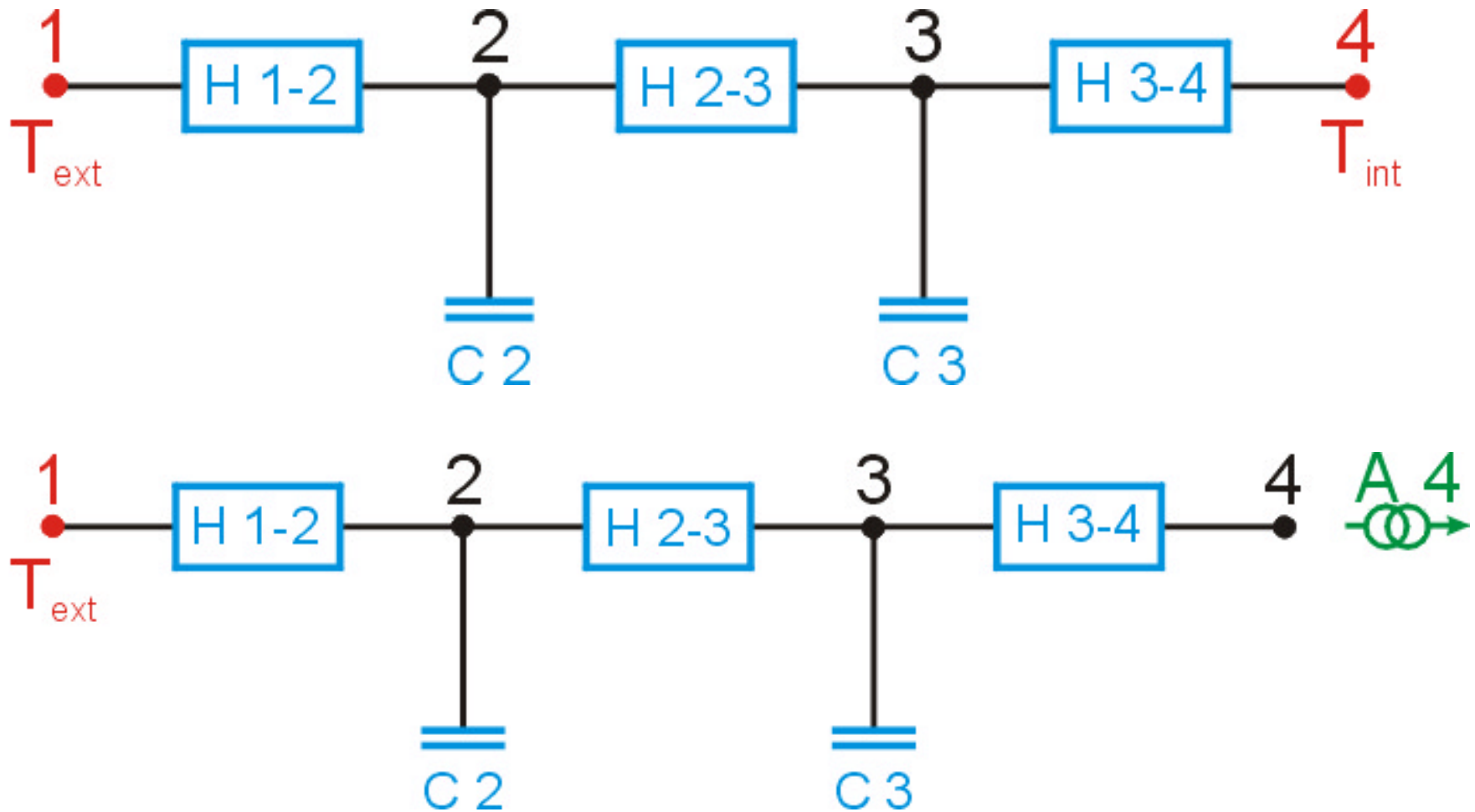
$$\delta T / \delta t = \alpha \cdot \delta^2 T / \delta x^2$$

**temperature field is continuous –
storage and conduction of heat can
take place in every part of the wall**

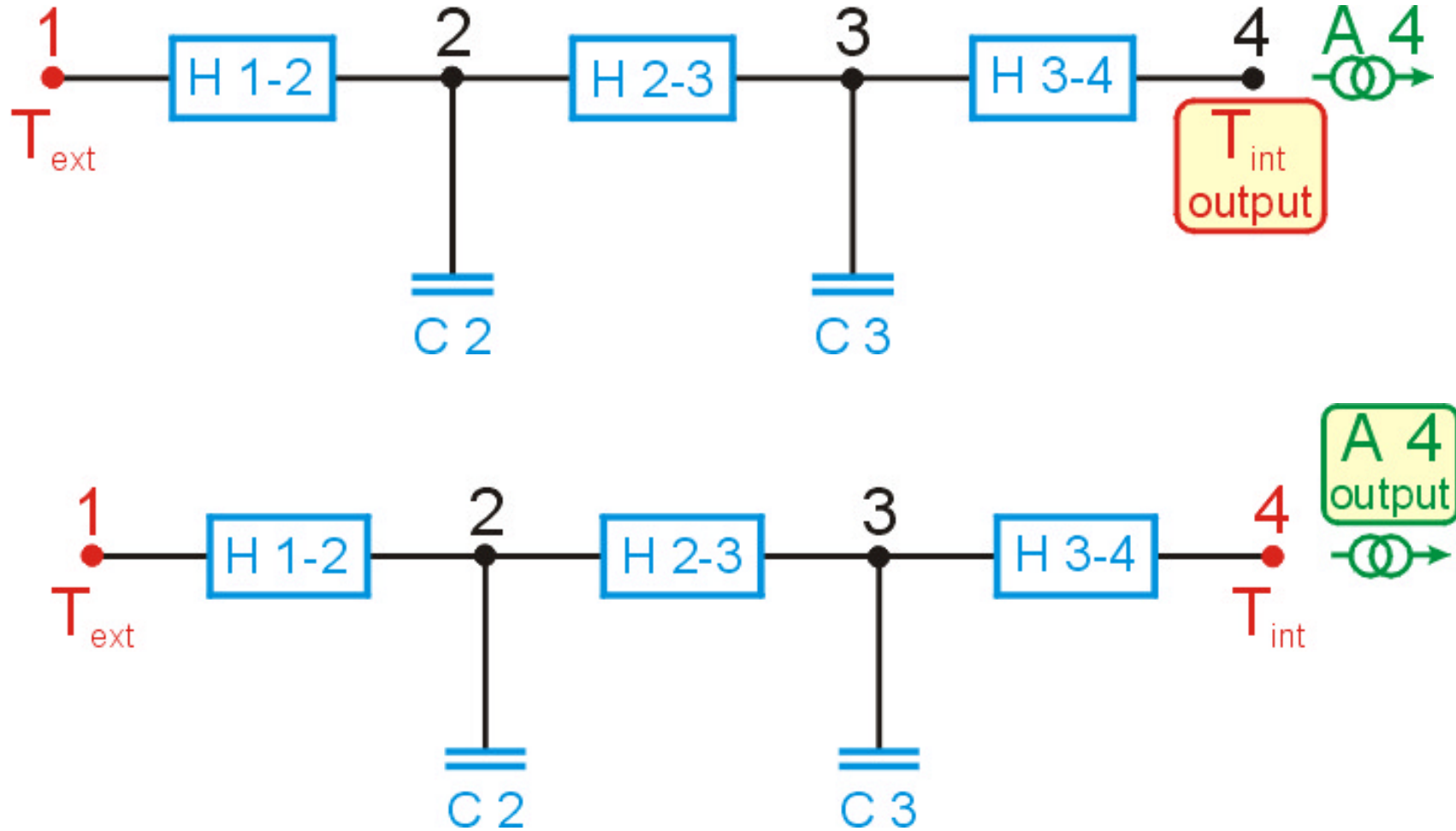
modelling by a RC-network - discretization of the temperature field within the wall



**in most cases: 3 or 4 conductances
(user experience)**



Output: temperature or heat flux, what is both calculated and measured



Identification process:

Minimization of the root mean square of deviations between measured and calculated output value

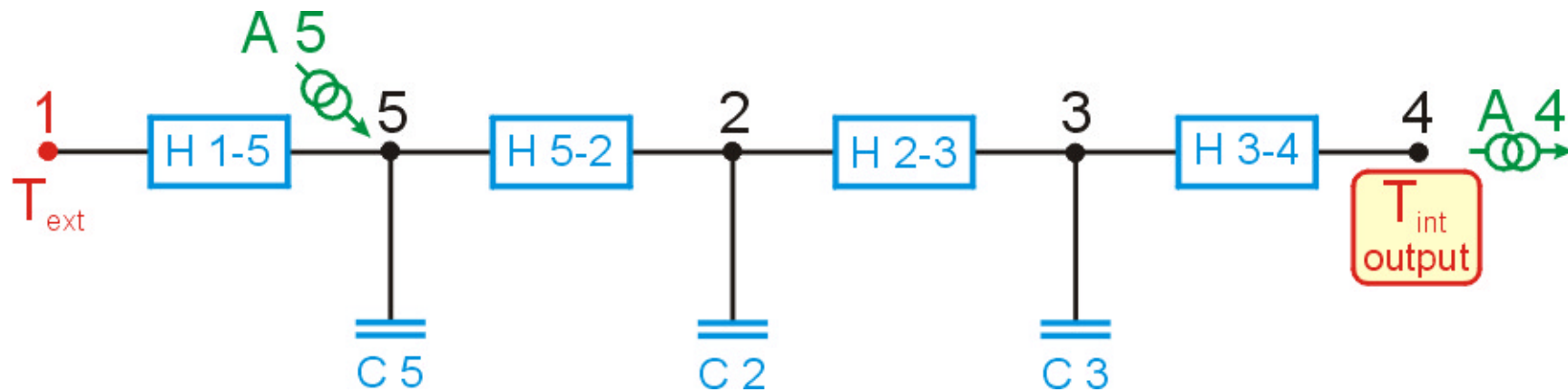
Result: values of the three conductances H 1-2, H 2-3 and H 3-4

Physical parameter: thermal resistance

$$R = 1/(H 1-2) + 1/(H 2-3) + 1/(H 3-4)$$

In case of measured air temperatures:

**possible solar radiation must
be taken into account**



PASLINK test cell (upgraded with heat flux sensitive tiles)

