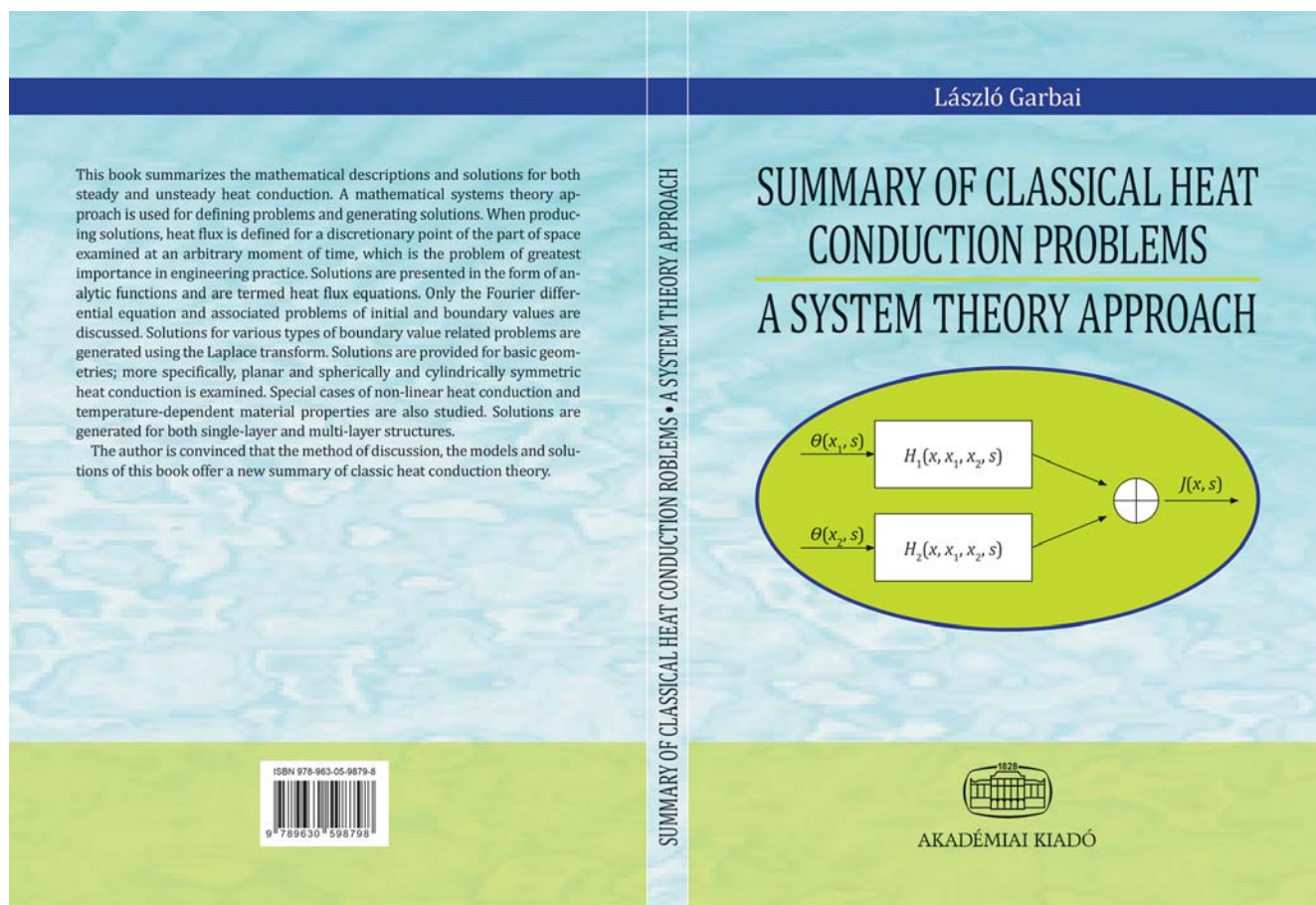


A kutatók eredményei közötti különbség a csővezetékek geometriai kialakításának eltéréséből adódik. Ezért lenne praktikus, hogy minden csővezetékgyártó cég a saját csővezetékeire meghatározza a csőszűrlődési tényező számítására vonatkozó képletet a Re-szám függvényében, és ne csak adott közegre és hőmérsékletre történjen adatszolgáltatás, ami jellemzően csak egy diagramból áll, amelynek alkalmazhatósága amúgy is korlátozott.

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8 Conclusion

The simulation showed that partial and intermittent heating and cooling makes a significant drop in the energy consumption compared to standard permanent use. This finding (which has been supported by numeric results) can explain the large gap between modelled and measured results in real situations. On the other hand the result can also be interpreted as a great potential for energy savings by taking the responsibility of important energy-consuming aspects out of the hands of occupants and put under the purview of a comfort controlling system.

It can also be concluded that model building input parameters are important to take realistic results. One key simulation input is related to weather database; in order to simulate a real situation detailed and verified weather data are needed. The humidity level in Izmir is higher than Ankara and the sensible air temperature varies with the humidity.

Total energy consumption for the model house is 23 152 kWh/year in Ankara and for heating 21 920 kWh/year. And from the natural distribution company webpage [15], 1 TL/kWh = 0.0942485. Hence, annual heating costs can be calculated for 2018 from the energy consumption and unit price. The calculated heating cost for the model house is 445 Euro per year (2065 TL/year). Scenario 5 showed that there it can be decreased by 194 Euro by partial and intermittent operation. For the scenario 3 which represents a full-time working people's house the saving potential is 40 Euro (Minimum wage for Turkey is 343 Euro in 2018 [16]). The model home is an average single-family house, but it is possible to make an assumption with lower income family house which is app. 75 m² [17].

The impact of different users' habits on the energy consumption of an average detached house also depends on the climate zone. Automation of mechanical systems with artificial neural networks can reduce the influence of user habits in order to achieve targeted energy efficiency of zero-energy buildings.

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