

**Parabolic Initial-Boundary Value Problems in
One Space Dimension**

In Part II we leave two-point boundary value problems and move on to time-dependent (i.e., unsteady) problems. Only problems posed in one space dimension are examined here; this enables us to make full use of the experience gained in Part I. These time-dependent problems are more difficult than two-point boundary value problems but less demanding than elliptic (steady) problems in two space dimensions.

The second-order differential equations that will be discussed in Part II encompass a wealth of applications, as Chapter 1 will reveal. Our presentation concentrates on the motivation and analysis of numerical methods; for detailed numerical results we recommend [HV03, VK93]. The classical theory of parabolic partial differential equations is presented in [Fri64, LSU67].

Unsteady problems in more than one space dimension will be discussed in Chapter III.4.