

## 6.1 Introduction

This section covers a few selected topics in solid state physics. There is no attempt to do more than scratch the surface of this vast field, although the basics of many undergraduate texts on the subject are covered. In addition a period table of elements, together with some of their physical properties, is displayed on the next two pages.

**Periodic table (overleaf)** Data for the periodic table of elements are taken from *Pure Appl. Chem.*, **71**, 1593–1607 (1999), from the 16th edition of Kaye and Laby *Tables of Physical and Chemical Constants* (Longman, 1995) and from the 74th edition of the *CRC Handbook of Chemistry and Physics* (CRC Press, 1993). Note that melting and boiling points have been converted to kelvins by adding 273.15 to the Celsius values listed in Kaye and Laby. The standard atomic masses reflect the relative isotopic abundances in samples found naturally on Earth, and the number of significant figures reflect the variations between samples. Elements with atomic masses shown in square brackets have no stable nuclides, and the values reflect the mass numbers of the longest-lived isotopes. Crystallographic data are based on the most common forms of the elements (the  $\alpha$ -form, unless stated otherwise) stable under standard conditions. Densities are for the solid state. For full details and footnotes for each element, the reader is advised to consult the original texts.

Elements 110, 111, 112 and 114 are known to exist but their names are not yet permanent.