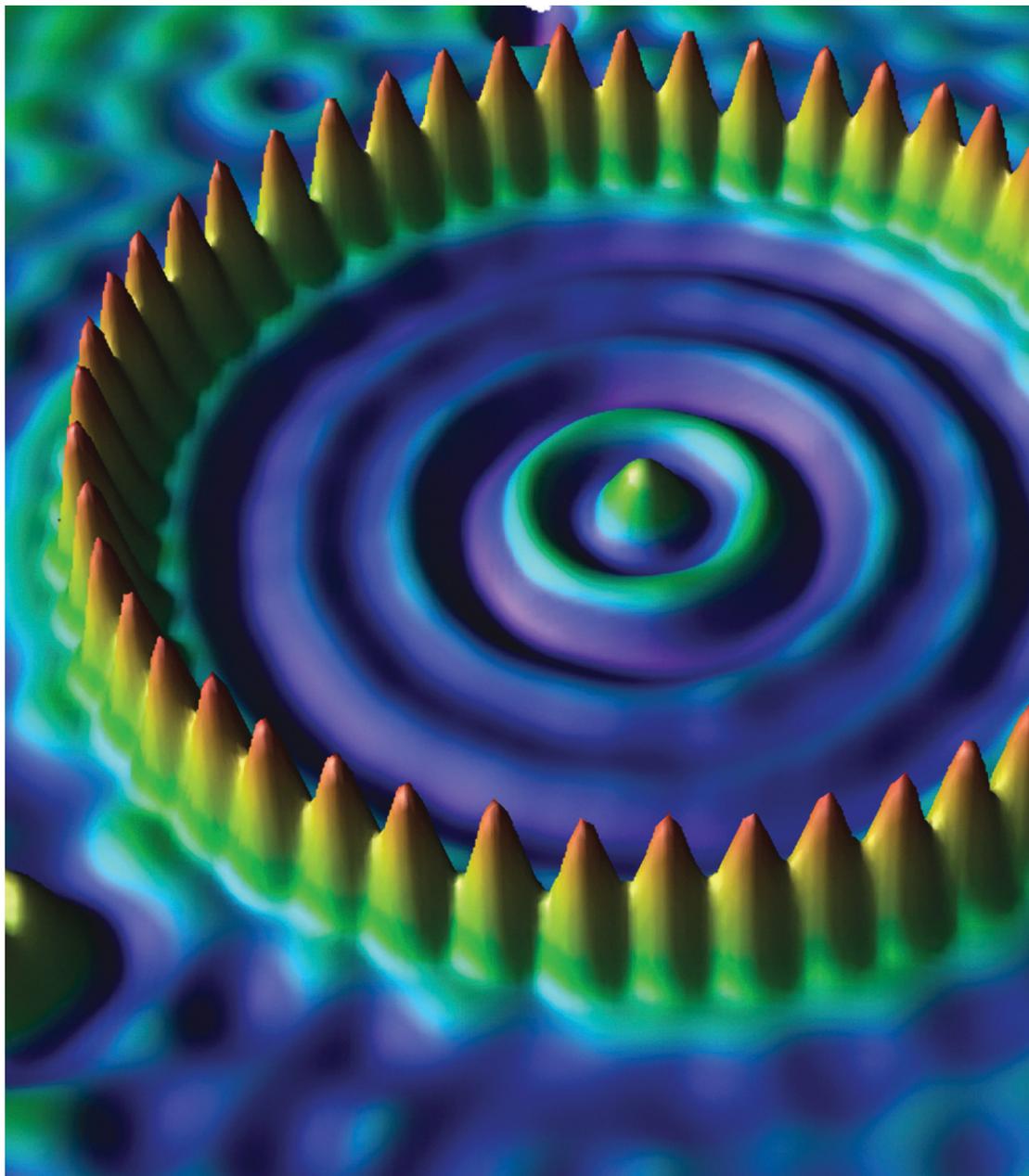


1.1: Introduction

Introduction to Chemistry

As you begin your study of college chemistry, those of you who do not intend to become professional chemists may well wonder why you need to study chemistry. You will soon discover that a basic understanding of chemistry is useful in a wide range of disciplines and career paths. You will also discover that an understanding of chemistry helps you make informed decisions about many issues that affect you, your community, and your world. A major goal of this text is to demonstrate the importance of chemistry in your daily life and in our collective understanding of both the physical world we occupy and the biological realm of which we are a part. The objectives of this chapter are twofold: (1) to introduce the breadth, the importance, and some of the challenges of modern chemistry and (2) to present some of the fundamental concepts and definitions you will need to understand how chemists think and work.



An atomic corral for electrons. A corral of 48 iron atoms (yellow-orange) on a smooth copper surface (cyan-purple) confines the electrons on the surface of the copper, producing a pattern of “ripples” in the distribution of the electrons. Scientists assembled the

713-picometer-diameter corral by individually positioning iron atoms with the tip of a scanning tunneling microscope. (Note that 1 picometer is equivalent to 1×10^{-12} meters.)

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