ALLEGATO 2 AL VERBALE 3

6

Descrivi un'applicazione concreta della spettroscopia ottica per la rivelazione di gas e spiega quali vantaggi offre rispetto ad altre tecniche di misura.

Cosa indica l'icona del lucchetto visibile nella barra degli indirizzi del browser quando si visita un sito web?

Before we discuss the different experimental techniques developed for the proof of atoms, a general remark may first be useful. The objects of atomic physics are not directly visible since they are much smaller than the wavelength of visible light, unlike bodies in the macroscopic world. Therefore, indirect method for their investigation are required. The results of such experiments need careful interpretation in order to allow correct conclusions about the investigated objects. This interpretation is based on assumptions that are derived from other experiments or from theoretical models.

ALLEGATO 3
AL VERBALE 3

5

Quali criteri consideri nella scelta di sorgenti ottiche per sensori di gas?

In PowerPoint, come si chiama l'opzione che permette di rendere una presentazione più dinamica attraverso transizioni tra le diapositive?

The complex reactions in the earth's atmosphere are started by the interaction of sunlight with atoms and molecules leading to energy deposition in molecules, their ionization and dissociation into fragments. Collisions between these particles can further increase the number of possible chemical reactions. The reaction probability depends not only on the temperature but also on the internal energy and structure of the collision partners. A more detailed understanding of these processes and the influence of man-made pollutant substances on such processes is of crucial importance for the survival of mankind.

ALLEGATO 4
AL VERBALE 3

1

Quali sono i principi fisici alla base della spettroscopia ottica utilizzata per la rivelazione di tracce gassose e quali tecniche sono comunemente impiegate?

In Excel, qual è la differenza tra un riferimento di cella relativo (es. A1) e uno assoluto (es. A1)?

An operator is a symbol which tells you to do something to whatever follows it. For example, "d/dx" tells you to take the derivative with respect to *x* of some mathematical expression. In this book, we will deal with operators which tell us to do such things as "rotate a molecule by 180°." A *symmetry operation* is an operation which moves a molecule into a new orientation equivalent to its original one. For example, consider the three-fold rotation of the planar molecule boron trifluoride in Fig. 1-2. If we could label the fluorine atoms we could tell that the molecule had been moved. Since we cannot label the atoms, the second configuration is entirely equivalent to the first one.

ALLEGATO 5
AL
VERBALE 3

2

Spiega come la sensibilità e la selettività di un sensore ottico possono influenzare la capacità di rilevare gas in tracce.

Quale misura di sicurezza è consigliabile adottare per ridurre il rischio di aprire allegati dannosi ricevuti via email?

A *symmetry element* is a point, line, or plane with respect to which a symmetry operation is performed. In the BF_3 example, the element we used was the axis passing through boron perpendicular to the molecular plane. We performed the threefold rotation about this axis. There are five kinds of symmetry operations we will use:

1. The simplest operation is the *identity operation*, usually given the symbol "E". This symbol tells you to do nothing to the molecule. We need the identity operation only to satisfy certain mathematical requirements of groups.

ALLEGATO 6
AL
VERBALE 3

3

Puoi descrivere come si calibra un sensore ottico per gas in tracce e quali strumenti o standard vengono utilizzati?

Perché è importante utilizzare una firma automatica nelle email di lavoro?

You should also have some appreciation of how the electron distribution changes upon going to some low-lying excited electronic states. Electronic spectroscopy deals with changes in the distribution of electrons within a molecule. The symmetries of molecular orbitals are important to electronic spectroscopy in the same way that the symmetries of vibrational wave functions were important to vibrational spectroscopy. The experimental technique most closely related to molecular orbital theory, photoelectron spectroscopy, will also be introduced in this chapter.

ALLEGATO 7
AL
VERBALE 3

4

Puoi descrivere come integreresti un sensore ottico in un sistema di monitoraggio continuo e quali difficoltà tecniche potrebbero sorgere?

Che cosa sono i cookie e a cosa servono nella navigazione web?

Atomic physics deals with the structure of atoms, their mutual interaction and their dynamics, i.e., their timedependent properties. The goal of experimental and theoretical efforts in this field is the full understanding of macroscopic properties of matter on the basis of its microscopic composition of the constituent atoms and a quantitative description of the relations between microscopic and macroscopic features. We will later see that this goal has, besides its essential contribution to fundamental physics and a new concept of nature, an enormous influence on technical applications.