TUTORIAL

Chemistry at the Boundary

Some scientists are delighted if you call their work superficial. They are surface chemists, who probe reactions that occur at the junctions between different phases of matter—such as where oxygen reacts with silicon during the production of a computer chip. Surface chemistry is also important for applications ranging from pollution control to rust prevention. The seven illustrated sections of this brisk tutorial, written for undergraduates or beginning grad students by chemist Roger Nix of Queen Mary University in London, cover the basics of the field, from the structure of metallic surfaces to imaging techniques. Follow links to galleries of images of highly magnified surfaces such as this semiconductor marred by a clod of silicon dioxide (above).

www.chem.qmw.ac.uk/surfaces/scc/sccinfo.htm

RESOURCES

Measuring the Web’s Reach

Spend a lot of time surfing the Internet? Then, depending on which recent study you believe, you must be a morose, alienated loner clicking away your life in quiet desperation, or a well-adjusted, solid character with a large circle of friends. How is the Internet really shaping our lives? Researchers with the Pew Internet and American Life Project are trying to find out, using surveys, interviews, and other techniques. Along with its own 20-plus reports on topics such as the use of the Internet by Hispanics, religion in cyberspace, and downloading music, the project’s Web site offers recent news clips and factoids from other surveys and studies. A well-stocked links section lists academic departments and other organizations probing everything from Internet health privacy to cybercrime. As a bonus, researchers can download raw data from the project’s reports 6 months after publication.

www.pewinternet.org

DICTIONARY

The Meaning of Light

Engineers and others working in the field of photonics, which involves the transmission of information using light, may find this dictionary handy. The nearly 5000 terms run from "abaxial spherical aberration" to zoom lens. The site also explains common abbreviations in photonics.

www.photonicsdictionary.com

EDUCATION

Next-Generation Computing?

The sands of time are running out for silicon, as ever-smaller computer chips near a physical limit. However, the days of faster, better, cheaper machines may not end if scientists can develop quantum computers that encode information in the different quantum states of individual atoms. To learn more about the principles behind this embryonic technology, try this primer.* You’ll need a grounding in physics and mathematics to follow the explanations of subjects like why the bits in a quantum computer (known as qubits) can be in both the 0 and 1 states simultaneously and how an obscure method for factoring numbers, known as Shor’s algorithm, spurred interest in quantum computing. This shorter, denser treatment covers some of the same ground.†

www.imsa.edu/~matth/cs299
† www.sees.bangor.ac.uk/~schmuel/comp/comp.html

Send great Web site suggestions to netwatch@aaas.org