THE HISTORY OF THE

THE 1960S

1966: Computer scientists at the Advanced Research Projects Agency obtain funding and set a plan in motion to build a computer network, called ARPAnet.

1969: A team at UCLA sends the first message over ARPAnet to a computer at Stanford Research Institute on Oct. 29. Midway through transmission, the system crashes, so instead of sending "login," it sends "lo." The entire message transmits an hour later.

The UCLA computer that sent the first message.

THE 1970S

1971: Ray Tomlinson, a young engineer at BBN Technologies, sends the first e-mail on ARPAnet. He uses the @ symbol to separate the name of the user and the name of the computer.

1974: Networking specialists Vinton Cerf and Robert Kahn design TCP/IP, a protocol eventually adopted by ARPAnet that specifies how computers share data and communicate. They coin the term "Internet."

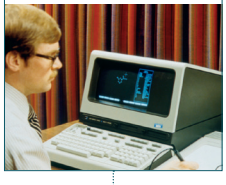
1977: The first personal computer modem—a device that transmits and receives digital information—is born. ▼

Dale Heatherington of Hayes Microcomputer Products poses with a prototype modem.

THE 1980S

1980: Chemical Abstracts Service (CAS) goes online, releasing a pilot version that contains about 500,000 registered substances to a limited group of customers.

Structure searching with CAS online.



1989: While working at CERN, the European Organization for Nuclear Research, Sir Tim Berners-Lee proposes the World Wide Web, a network of hypertext documents for people to share their work.

THE 1990S

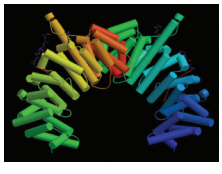
1993: Mosaic, an intuitive browser with a graphical interface, launches. It helps pave the way for programs such as today's Mozilla Firefox and Google Chrome.

1993: Adobe Systems launches the portable document format, or PDF, a fixed-layout document that's shareable among users on different platforms. Scientists eventually embrace PDFs as a way of reading journal articles online.

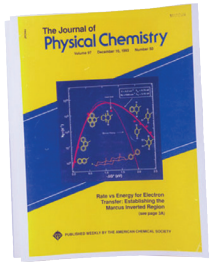
1995: CAS launches SciFinder, a graphical interface that gives scientists access to chemical literature, patents, and substance information.

SciFinder® A CAS Solution

1996: The U.S. Protein Data Bank, a repository of 3-D crystallographic structures of large biomolecules, launches a Web-based data submission tool.



1996: The American Chemical Society begins publishing electronic editions of its journals on the Web, starting with the *Journal of Physical Chemistry.*

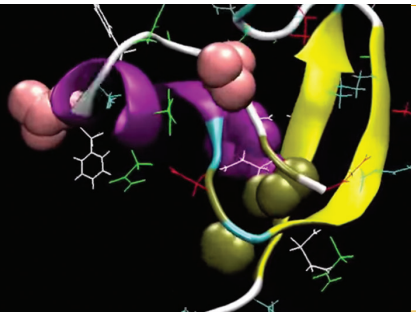


1998: Internet services powerhouse Google—started by Larry Page and Sergey Brin—begins running out of a garage in Menlo Park, Calif. Eventually, people everywhere begin "Googling" themselves.

1999: The distributed computing project SETI@home launches, harnessing the power of volunteers' idle computers to search radio signals for signs of intelligent life in the universe.

INTERNET AND CHEMISTRY

THE 2000S



2000: Stanford researcher Vijay Pande launches Folding@home. Volunteers donate idle computer time to help run simulations of protein folding.

The folding of this protein, NTL9, was simulated with Folding@home.

2001: Jimmy Wales (shown) and Larry Sanger launch Wikipedia. Today, the online encyclopedia features more than 35 million articles, written by about 73,000 volunteers.

2002: MIT opens a pilot version of the site OpenCourseWare to the public. The project now publishes free materials for more than 2,200 MIT courses.

2002: Derek Lowe begins writing In the Pipeline, the oldest chemistry blog still in existence.

2003: The Public Library of Science publishes its first open access journal, *PLOS Biology.*

PLOS | Open for Discovery

2003: A five-person team releases the first version of Skype. Just 10 years later, 300 million people are using the communications software worldwide.

2003: LinkedIn launches. The professional networking site now has more than 360 million users.

LinkedIn

2005: YouTube is born. Jawed Karim, co-founder of the video-sharing site, uploads the first clip, which shows him standing in front of elephants at the San Diego Zoo.

2006: Twitter goes live, allowing users to broadcast 140-character messages to the world. Its creators chose "Twitter" as the site's name after learning that one definition is "a short burst of inconsequential information."

2007: Apple releases the first generation of the iPhone. The device revolutionizes the smartphone industry, and competitors race to develop products that match the iPhone's capabilities.

2007: The beta version of ChemSpider launches. This crowdsourced database now holds information for more than 30 million chemicals.

2008: The Periodic Table of Videos debuts, starring Sir Martyn Poliakoff and others from the University of Nottingham. The YouTube videos explain the chemistry of the elements, discuss chemistry in the news, and demonstrate eye-catching reactions in slow motion.

2008: Two MIT students create Dropbox, a service that allows users to share files with others via cloud storage.

Dropbox