

another 18 years for the next readable account of future developments in this fascinating field.

KURT NASSAU
Princeton University

Niels Bohr: Physics and the World

Edited by Herman Feshbach, Tetsuo Matsui and Alexandra Oleson
Harwood Academic, (Gordon and Breach), New York, 1988.
\$24.00 pb ISBN 3-7186-0484-1

In 1979, while compiling a volume dedicated to the centenary celebration of Abram F. Ioffe, I asked Peter L. Kapitza to take part. Kapitza considered Ioffe his first teacher, and I was certain that he would write a paper for such a prestigious publication. To my astonishment, he declined my invitation. From his point of view a book of that kind made no sense: Nobody would read it, and papers devoted to different topics of physics usually have to be published in special journals. I tried to convince Kapitza to change his mind, and as an example I pointed to the excellent book printed in the US in connection with Albert Einstein's 70th birthday. Unfortunately, Kapitza was inflexible. Now I am sure that if I had had the Niels Bohr centenary volume, prepared with great care and love by Herman Feshbach, Tetsuo Matsui and Alexandra Oleson, I could have convinced Kapitza to abandon his prejudice.

Nineteen American and West European scholars contributed to *Niels Bohr: Physics and the World*. It is a pity that Soviet physicists were unable to attend the Boston symposium held in November 1985. In the USSR Niels Bohr is revered, popular and beloved. During the mid-1960s the first two-volume collection of Bohr's scientific papers was published in the USSR in the series *Classics of Science*, and his 100th birthday was also celebrated in October 1985 in Pushchino (just outside of Moscow); the proceedings, entitled *Nil's Bor i Nauka 20 Veka* (*Niels Bohr and 20th-Century Science*), were published in Kiev in 1988.

The large number of papers included in the reviewed book precludes the possibility of detailed analysis in a short review; the articles are summarized by Feshbach in his foreword. Bohr (like Einstein, Heisenberg, Pauli, Schrödinger and other giants of 20th-century physics) made such an outstanding contribution to the development of physics that his influence is

present in many fields, including, of course, quantum mechanics, nuclear physics, condensed matter physics, biology and philosophy. All of these fields, as well as the political ramifications of Bohr's work, are covered in the book. Victor Weisskopf and Abraham Pais, who opened the symposium with their papers, worked and kept contact with Bohr in the 1930s and 1940s, respectively. In their brilliant papers they present, side by side with physics and philosophy, vivid bio-

graphical and personal details. Arthur Miller, using a historical approach, analyzes Bohr's studies of the quantum theory of the atom and quantum mechanics. The "heroes" of Daniel Kleppner's paper ("Niels Bohr and Atomic Physics Today") are not the classical atoms of Bohr's theory, but hydrogen-like creations (muonium, positronium and more exotic atoms such as "high-Z hydrogen" and geonium), whose existence was not even suspected in the middle of the

NanoScope® II Scanning Probe Microscopes

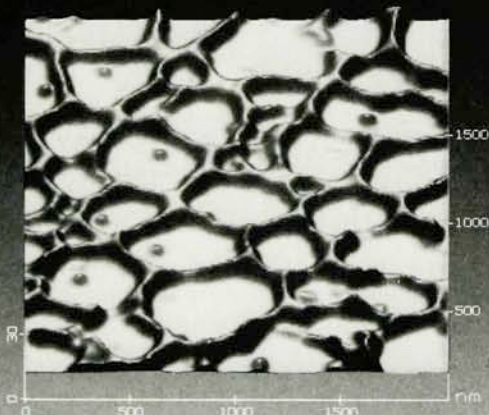


Image of a Web-like Voronoi Tessellation Pattern of a Polystyrene Coating on Silicon: Sample prepared by CIE, University of Minnesota, and scanned at Digital Instruments.

AFM: Yet More Power

Digital Instruments is now shipping the NanoScope AFM (Atomic Force Microscope, an ultra-low force profilometer) as an add-on option for the NanoScope II.

Features Include:

- Atomic Resolution
- Large scans up to $75\mu \times 75\mu$
- Operation under liquid or in air (ref. Weisenhorn *et al*, Science, 16 Mar 90)
- No extra controllers needed

The NanoScope AFM is backed up by the experience Digital Instruments has gained in delivering over 300 STM (Scanning Tunneling Microscope) systems.

di Digital Instruments, Santa Barbara
FAX: 805-968-6627 • TEL: 805-968-8116
TOKYO: Toyo Corp. • FAX: 03 (279) 0852 • TEL: 03 (279) 0771

Circle number 33 on Reader Service Card

second decade of the 20th century. Michael Fisher has contributed a fine paper on contemporary physics of the condensed state and its most intensively developing branches.

Nuclear and astrophysics are the subjects of the next and largest series of papers (by Feshbach, James D. Bjorken, George Field, Gerard 't Hooft and T.D. Lee); all of these papers make compelling reading. Stephen Adler's paper on the new

trends in quantum field theory is followed by Gunther Stent's review, the content of which is connected with Bohr's interest in biological problems and his contribution to the philosophy of this science, especially in his 1932 paper "Light and Life".

John Bell, Alain Aspect and Philippe Grangier and Abner Shimony in their excellent papers turn to the well-known philosophical-physical discussions between Bohr and Ein-

stein. The authors evaluate these discussions from a contemporary point of view, with "Gedanken experiments" having become real "Laboratory experiments" (the paper by the French scientists Aspect and Grangier even has such a title). The timeliness of these works is illustrated by the title of a paper read by Yakov Smorodinskii from Pushchino: "The Debate Which Has No End".

The last section of four papers is tied to politics, and includes Loren Graham's paper "The Soviet Reaction to Bohr's Quantum Mechanics." (In the past the philosophy of quantum mechanics had political reverberations, especially in the USSR.) Articles on politics and science appear because Bohr was not only a great physicist, but also a significant political figure. His belief in the necessity of open publication in nuclear physics and technology underlie the contemporary disarmament movement, and his aspiration to make science international resulted in the organization of his Institute in Copenhagen and gave rise to the formation of other such institutions. Martin Sherwin's, John Steinbruner's and Edoardo Amaldi's papers are devoted to problems of the politics and organization of science.

In sum this is a well-written and gratifying book dedicated to a great physicist and man, and his beloved science.

VICTOR YA. FRENKEL

A. F. Ioffe Physico-Technical Institute
of the USSR Academy of Sciences,
Leningrad

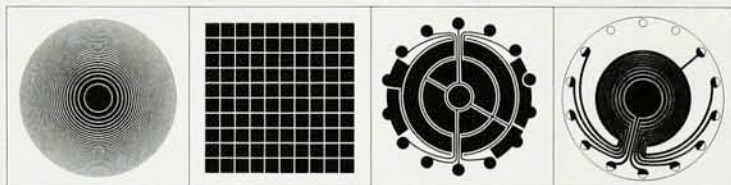
But the Crackling Is Superb: An Anthology on Food and Drink by the Fellows and Foreign Members of the Royal Society

Edited by Nicholas Kurti
and Giana Kurti

Adam Hilger, Philadelphia,
1988. 261 pp. \$27.00 hc
ISBN 0-85274-301-7

In 1986 Nicholas Kurti solicited recipes or brief essays on cooking from the fellows and foreign members of the Royal Society. Of the thousand he approached, 450 replied, of whom 85 sent contributions. Only one warned that the project would lay the society open to ridicule. He or (with a very small *a priori* probability) she was, of course, right. Not that the project should have been abandoned on this

MULTIPLE ANODE



MICROCHANNEL PLATE PHOTOMULTIPLIER TUBES

ITT produces a wide range of multiple anode microchannel plate photomultiplier tubes offering multiple discrete parallel channels of photodetection in one tube. A variety of anode patterns are available to match optical image plane requirements; for example:

ANODE PATTERN

Concentric Rings of equal area
10x10 Array
Segments and Sectors
Comb
Wedge and Strip

TYPICAL APPLICATION

Fabry-Perot Interferometry
Wavefront analysis
Pattern Recognition
Spectrometry
Photon Detection; Centroiding

... and of course, if you have a special application, ITT can design new patterns specifically for you.

Tubes are available in photocathode diameters of 18, 25 and 40mm with a wide selection of input windows and photocathodes including GaAs, covering all wavelengths from UV / solar-blind through the visible spectrum to near-IR. Gateable versions for range gating and background reduction, high gain versions for photon counting, and fast response time versions for pulse detection are also available. All these tubes are insensitive to strong magnetic fields.

Contact us today about *your* special application for multiple anode microchannel plate photomultiplier tubes.

(ITT also has a broad line of standard tubes and video cameras; ask for our catalogs.)

A Unit of ITT Defense

ITT ELECTRO-OPTICAL PRODUCTS DIVISION

Tube and Sensor Laboratories

P. O. Box 3700 • Ft. Wayne, IN 46801

Phone: 219-423-4341 • FAX: 219-423-4346 • Telex: 23-24-29



ITT

Circle number 34 on Reader Service Card