

positional parameters, anisotropic thermal parameters, bond lengths and angles, and perspective structural drawings for  $[\text{Ti}_7\text{O}_4](\text{OCH}_2\text{CH}_3)_{20}$ ,  $[\text{Ti}_8\text{O}_6](\text{OCH}_2\text{C}_6\text{H}_5)_{20}\text{O}(\text{CH}_2\text{CH}_3)_2$ , and  $[\text{Ti}_{10}\text{O}_8](\text{OCH}_2\text{CH}_3)_{24}\text{C}_6\text{H}_5$  (86 pages); tables of calculated

and observed structure factors for  $[\text{Ti}_7\text{O}_4](\text{OCH}_2\text{CH}_3)_{20}$ ,  $[\text{Ti}_8\text{O}_6](\text{OCH}_2\text{C}_6\text{H}_5)_{20}\text{O}(\text{CH}_2\text{CH}_3)_2$ , and  $[\text{Ti}_{10}\text{O}_8](\text{OCH}_2\text{CH}_3)_{24}\text{C}_6\text{H}_5$  (64 pages). Ordering information is given on any current masthead page.

## Computer Software Reviews

**SYSTAT/SYGRAPH. Version 5.0 DOS.** SYSTAT, Inc.: 1800 Sherman Ave., Evanston, IL 60201-3793. List price \$895.00. The package includes four manuals: GETTING STARTED, STATISTICS, DATA, and GRAPHICS. A MacIntosh version is available for \$795.00. Single copies of both versions are available to academic users in the U.S. and Canada at a 30% discount. A student version called MYSTAT is available at \$5.00 per copy. Site licenses and network versions are available to colleges, universities, and other multiuser organizations.

SYSTAT is a statistics package with extraordinary capability for a non-mainframe package. However, some might argue that its 6 Mb hard disk requirement puts it in a mainframe category. It can be run from floppy disks if two drives are available. The almost 700 page manual on statistics is packed with useful information in a very readable format. Some topics include correlations, factor analysis, multidimensional scaling, analysis of variance, nonlinear estimation, nonparametric statistics, and series analysis including Fourier transformations. Each individual statistical approach (e.g. linear regression, piecewise regression, analysis of covariance, Lilliefors test, exponential smoothing, etc.) is augmented with an example with pre-entered data for a hands-on experience. There are approximately 115 examples in the statistics manual alone. On the computer, the package is extremely easy to use with a well-designed menu system. For those with some computer experience it takes approximately one day to learn one's way around the menu system used in this program. The well-written tutorial in the GETTING STARTED manual provides an excellent and efficient way to learn the system.

Data input and preliminary manipulation is covered in a separate 250 page manual. Data are easily entered manually, from ASCII data files and from data bases such as Lotus 1-2-3, Symphony, and dBase. Data may be transformed, removed, and added to files by some simple BASIC style programming commands. Macros may be written for overall program control and long repetitive processes.

SYGRAPH is the second part of this package, described in its own 500 page manual. The graphics capabilities are excellent. Bar and pie

charts, scatter plots, three dimensional and contour plots and many more are all readily generated. Graphs are readily converted between Cartesian and polar coordinates. Maps (USA and world maps are included in the package) in a variety of projections are also easily drawn. Commands for all plots may be made from the menu or from typed command lines. Color may be added to graphics by specifying the name of the color or the desired wavelength in nanometers. There is an interesting and well-documented chapter entitled Cognitive Science and Graphic Design. It presents some important insights on avoiding unintended visual aberrations. Finally, output from SYGRAPH can be formatted for a wide range of printers, plotters, or laser printers, either in the setup program or directly from the menus. No listing of our Okidata Microliner 320 was found, but after some trial and error the EPSON 8 pin high density option was found to be a suitable substitute.

The manufacturer offers unlimited technical support for registered users. SYSTAT has a two day training course costing approximately \$550. A bulletin board is available for users which also maintains a list of bugs that have been found (none were found in this review). At least 15 different supplements and map files are available to enhance SYSTAT/SYGRAPH.

This package most likely provides more statistical power than the chemist would typically use. The graphics portion has little capability for chemical structures, as was expected. Four volumes of instructions totalling about 1700 pages is daunting. However, after the tutorial the other manuals can be consulted on a need-to-know basis. All of the methodologies are amply referenced to appropriate texts and primary literature. The DOS version runs on IBM pc's or compatibles with at least 640k RAM and 7.5 Mb free hard disk space, and the license allows for one backup copy and use on only one computer at a time. This program is currently being used with the Perkin-Elmer LS-50 luminescence spectrometer in the generation of three-dimensional fluorescence plots.

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## Book Reviews\*

**Progress in Colloid and Polymer Science. Volume 83. Interfaces in Condensed Systems.** Guest Editor: G. H. Findenegg (Bochum). Springer-Verlag: New York. 1990. viii + 224 pp. \$89.00. ISBN 0-387-91369-6.

This book contains a selection of the papers presented at the Kolloid-Tagung 1989 at the Ruhr-Universität-Bochum on October 1-4, 1989. The papers are grouped into the following sections: General (Invited papers); Interfaces; Monolayers; Surfactant Systems; and Dispersed Systems. There is a 1-page preface, an author index, and a subject index.

**Progress in Colloid & Polymer Science. Volume 82. Surfactants and Macromolecules: Self-Assembly at Interfaces and in Bulk.** Guest Editors: B. Lindman (Lund), J. B. Rosenholm (Abo), and P. Stenius (Stockholm). Springer-Verlag: New York. 1990. viii + 364 pp. \$148.00. ISBN 0-387-91367-X.

This book contains a selection of the papers presented at the 10th Scandinavian Symposium on Surface Chemistry held at the Abo Akademi University in Abo, Finland, on June 14-16, 1989. The papers presented are grouped into the following sections: Adsorption from Solution; Emulsions, Foams, Thin Liquid Films; Self Assembling Systems;

and Surface Modification and Interactions. There is an author index and a subject index.

**Flavour Science and Technology.** Edited by Y. Bessi re (Borex, Switzerland) and A. F. Thomas (Firmenich SA, Geneva, Switzerland). John Wiley & Sons: Chichester, New York, Brisbane, Toronto, Singapore. 1990. xiv + 370 pp. \$150.00. ISBN 0-471-92782-1.

This book is based on the Sixth Weurman Symposium held May 2-4, 1990 in Geneva. It contains most of the contributions presented as oral communications and posters on the following main topics: (1) The Chemistry of Flavours, (2) Energy Application and Food Flavour Systems, and (3) Instrumentation and Data Treatment. There is an author index and a subject index.

**Materials Chemistry at High Temperatures. Volume 1: Characterization. Volume 2: Processing and Performance.** Edited by John W. Hastie (National Institute of Standards and Technology). Humana Press: Clifton, N.J. 1990. \$120.00 each volume. Volume 1: xviii + 446 pp. ISBN 0-89603-186-1. Volume 2: xviii + 522 pp. ISBN 0-89603-187-X.

These books contain selected papers from the Proceedings of the Sixth International Conference on High Temperatures: Chemistry of Inorganic Materials, many of which were originally published in *High Temperature Science, An International Journal*, Volumes 26-28; the plenary papers were originally published by IUPAC in *Pure and Applied Chemistry*

\*Unsigned book reviews are by the Book Review Editor.