

- WANKA, F.: Ultrastructural changes during normal and colchicine inhibited cell division of *Chlorella*. — *Protoplasma* **66** : 105–130, 1968.
- WILSON, R., CHIANG, K.: Temporal programming of chloroplast and cytoplasmic ribosomal RNA transcription in the synchronous cell cycle of *Chlamydomonas reinhardtii*. — *J. Cell Biol.* **72** : 470–481, 1977.
- ZACHLEDER, V., DOUGHA, J., BERKOVÁ, E., ŠETLÍK, I.: The effect of synchronizing dark period on populations of *Scenedesmus quadricauda*. — *Biol. Plant.* **17** : 416–433, 1975.
- ZACHLEDER, V., ZACHLEDEROVÁ, M., ŠETLÍK, I.: Fluorescence microscopy of acridine orange stained nuclei in chlorococcal algae. — *Arch. Hydrobiol. (Suppl. 46) Algol. Stud.* **11** : 185 to 203, 1974.

BOOK REVIEW

ARNOLD, L., LEFEVER, R. (ed.): STOCHASTIC NONLINEAR SYSTEMS IN PHYSICS, CHEMISTRY, AND BIOLOGY. Proc. Workshop, Bielefeld, Oct. 1980. — Springer Verlag, Berlin—Heidelberg—New York 1981. 237 pp., 48 figs. Cloth DM 62,—, approx. US \$ 29.60.

The book contains twenty one invited papers presented at the interdisciplinary workshop held at the University of Bielefeld. The main aim of this meeting was, to bring physicists, chemists and biologists together with mathematicians who are interested in the theory of stochastic processes. The contributions are grouped in nine parts as follows: 1) From Deterministic to Stochastic Behavior; 2) Approximation of Stochastic Processes; 3) Description of Internal Fluctuations; 4) Long-Term Behavior of Stochastic Systems; 5) External Fluctuations and Noise Induced Transitions; 6) Stochastic Behavior in Model Systems; 7) Space-time Processes and Stochastic Partial Differential Equations; 8) Phase Transitions and Irreversible Thermodynamics; 9) Markov Processes and Time Reversibility.

The papers can be divided into two groups. The first contains four mathematically oriented survey lectures. The problems solved in them are: approximation of discontinuous processes by continuous, asymptotic behavior of several dimension diffusion, qualitative theory of ordinary stochastic differential equation and theory of stochastic partial differential equations.

The first paper shows on some examples a natural approach to approximation theorems for the process given by stochastic differential equation as well as for the process specified by its generator. The other two papers survey the results in the given theory and sketch some problems to be solved. The theory of stochastic partial differential equations is summarized and applied on models of chemical reactions in the last paper.

The second group is less homogeneous as the contributions are oriented to specific topics of research. Those devoted to biological questions are directed to population genetics and neuronal behavior. The theory of noise induced transitions is applied to the model of genic selection and the Hodgkin-Huxley model for sodium and potassium activation in nerve membrane. How to simulate a set of continuous stochastic processes describing phenomena studied in population genetics is suggested in paper concerning the application of Ito's stochastic integrals. The application of Poisson processes in biology is reviewed on the models of population growth and namely on the Stein's model of spontaneous neuronal activity.

The book presents a progress in application of modern mathematical theory in both the traditional and non-traditional fields, but relatively deep knowledge of this mathematical theory is necessary to understand it.

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