

field. Percentage activity distribution, as measured by using ^{86}Rb , is also close to the average values but suffers from the drawback that its detection efficiency is much lower, owing to the fact that only 8% of gamma rays are emitted with energies above 1 MeV. Further, its short half-life makes long term monitoring for root activity difficult.

Identification of the root activity by probe using ^{59}Fe was compared with other field methods of study, namely; percent root weight distribution in the 4 layers as obtained by total separation¹⁷ by washing from the soil cores of 19 cm diameter and 20 cm deep, their ^{59}Fe activity, and the moisture extraction pattern¹⁸ in the 4 soil layers of depth 0–80 cm. The results are presented in table 2. The activity measured by the probe and in separated roots was similar to the root activity depicted by the moisture extraction pattern, but differed significantly from that of the root weight distribution. This could be due to the contribution of non-active and dead roots to total weight. However, there was a linear relation between the relative activity represented by ^{59}Fe and the root weight in the 20–80 cm soil

which largely comprises the active roots and root hairs. These might not contribute much to the total root weight, but very much to absorption, owing to the large soil-root interface contact. Since the activity was measured after flowering, when root growth of cereals ceases¹⁹, the ^{59}Fe distribution possibly represents the mobile²⁰ phase of iron in the plant.

The root activity monitored over a 40-day period from flowering, using ^{59}Fe for pearl millet in different soil layers, is presented in table 3. There is no significant change in the root growth from flowering to harvest 10 days after the injection. The principal objective, i.e. reducing the variability due to sampling has been achieved by the in situ measurement of root activity using the gamma probe. Changes in root growth can be continuously monitored without any disturbance of the root profile in the soil. The vertical extension of the root system into different layers can be thoroughly established. This method completely eliminates laboratory processing, which enhances its feasibility for scanning a variety of rooting habits effectively in a shorter time with less personnel.

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Announcements

USA

23rd Hanford life sciences symposium 'Interaction of biological systems with static and ELF electric and magnetic fields'

Richland, Washington, 2–4 October 1984

Symposium organizers: Larry E. Anderson, Bruce J. Kelman, Richard J. Weigel. Sponsored by US Department of Energy and Battelle Memorial Institute, Pacific Northwest Laboratories.

The symposium will provide a forum for discussions of all aspects of research on the interaction of static and extremely-low-frequency (ELF) electric and magnetic fields with biological systems. These systems include simple biophysical models, cell and organ preparations, whole animals, and man. Dosimetry, exposure system design, and the role of artifacts in ELF bioeffects research will be discussed. The symposium will include research which is directly related to contemporary problems associated with electric power transmission and use (ac and dc). It will also include research on the fundamental mechanisms

of interaction between static of ELF fields and biological processes.

For further information write, before 1 August 1984 to the symposium secretary: Patricia M. Bresina, Biology and Chemistry Department, Battelle, Pacific Northwest Laboratories, P.O. Box 999, Richland WA 99352, USA.

Austria

6th international symposium on 'Prevention and detection of cancer'

Vienna, 26–29 November 1984

The program of the symposium includes overview lectures, panels, poster sessions, scientific exhibits and special workshops designed for critical appraisal of current data. For information, please write to 'Prevention and detection of Cancer, AMEX P.O.B. 790459, DALLAS, Texas 75379/USA.

Italy

International School of Biophysics

14th course: Bioelectrochemistry II, membrane phenomena

Erice, Sicily, 5–15 November 1984

The course, sponsored by the BECS (Biological Energy Conversion Systems) Group, the Bioelectrochemical Society, the European Physical Society, the Italian National Research Council, the Sicilian Regional Government, and others, will have the following program:

Lectures. Structure and stability of membranes; their models; membrane lipids and proteins; breakdown and fusion – Transport of charged species through membranes; thermodynamics; mediated, nonmediated, active and passive transport; coupling mechanisms – Energy transduction; mitochondrial oxidative phosphorylation; chemiosmosis; photosynthesis – Effect of electric signals on membranes; basic electrophysiology; thermodynamics and conformational states; electric modulation of tissue growth and repair.

Seminars and round-table discussions. Interactions between external electric fields and membrane and membrane components.

Lecturers. H. Berg, Jena (GDR); M. Blank, New York (USA); R.S. Caplan, Rehovot (Israel); D. Chapman, London (UK); F. Conti, Camogli (Italy); J. de Gier, Utrecht (NL); D. Gräber, Berlin-West; E. Korenstein, Rehovot (Israel); P. Läuger, Konstanz (GFR); G. Lenaz, Bologna (Italy); B.A. Melandri, Bologna (Italy); I.R., Miller, Rehovot (Israel); E. Neumann, Bielefeld (GFR); A.A. Pilla, New York (USA); D.F. Wilson, Philadelphia (USA).

General information. Persons wishing to attend the course should write to Prof. G. Milazzo, Piazza G. Verdi 9, I-00198

Roma, Italy. They should specify: a) date and place of birth, together with their present nationality; b) degree and other academic qualifications; c) list of publications; d) present position and place of work; and include e) a letter of recommendation from their research group leader or from a professor of biophysics, physics, physiology or psychology.

Fees. Total fee including board and lodging is \$ 500. Partial support can be given to some deserving students. The request for such aid must be specified and justified in the application letter.

Closing date for application is 20 August 1984.

France

IXth European symposium on hormones and cell regulation

Ste-Odile, Strasbourg, 24–27 September 1984

For information, please contact the organizer of the symposium, Dr. B. Hamprecht, Physiologisch-Chemisches Institut, Universität Würzburg, Koellikerstrasse 2, D-87 Würzburg, Federal Republic of Germany.

Federal Republic of Germany

4th international meeting of the Electrophoresis Society

Göttingen, 27–31 August 1984

Symposia, Round tables and Workshops are planned which will not run in parallel. All inquiries related to the meeting should be addressed to Prof. Dr. Volker Neuhoff, Max-Planck-Institut für experimentelle Medizin, Hermann Rein-Strasse 3, D-3400 Göttingen/FRG.

Instructions to Authors

Experientia is a monthly journal of natural sciences devoted to publishing articles which are interdisciplinary in character and which are of general scientific interest. Considered for publication will be hitherto unpublished papers that fall within one of three categories:

Reviews (one-man and multi-author reviews)

Mini-reviews (1–2 printed pages)

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Papers reporting on work that is preliminary in nature, or wherein animal experiments have been conducted without the appropriate anesthesia, will not be accepted.

Manuscript (including all tables and figures) must be submitted in *triplicate* and must be in *English*. *Title pages* should bear the author's name and address (placed directly below the title), a brief *abstract* (of approximately 50 words for short communications) mentioning new results only, and a listing of *key words*. *Footnotes* must be avoided. *Tables*, and then *figures*, are to follow the body of the text and should be marked with self-explanatory captions and be identified with the author's name. All *data* should be expressed in units conforming to the *Système International* (SI). *Drawings* are to be on heavy bond paper and marked clearly in black. *Photographs* should be supplied as glossy positive prints. Please note that we use two different systems for citing references. 1. For *Review Articles*, references should be arranged alphabetically and be numbered. Within the text, literature should be referred to by number and, where indicated, by author. The references should contain full journal article titles and the first as well as the last page of the article cited. 2. For *Short Communications*, an abbreviated bibliography is requested and references should be listed chronologically. Please consult a current issue of *Experientia* or inquire at the editorial office for details on form.

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9. Cellular Biology
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