Proceedings of the Thirteenth Annual Northeast Bioengineering Conference

Volume 1

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Editor:
Kenneth R. Foster, Ph.D., P.E.

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Preface

The Thirteenth Northeast Bioengineering Conference was held on March 12-13, 1987 on the University of Pennsylvania campus in Philadelphia. The Conference was jointly sponsored by Drexel University and the University of Pennsylvania, and by the IEEE Engineering in Medicine and Biology Society.

By all standards the Conference was an outstanding success. The technical program consisted of nearly 250 scientific papers, organized into 36 platform and one poster session. Special features included symposia on fractals and bioengineering, interactions of electromagnetic fields and biological systems, and aerospace bioengineering. Plenary papers were presented by Henry Eden (bioengineering at the NIH), Gabor Herman (medical imaging), John Reid (medical ultrasound), Willis Tompkins (medical instrumentation), and Oleh Tretiak (imaging processing). A reception and banquet were held at the Egyptian Room of the University Museum, followed by the talk "Animating the Human Figure" by Norman Badler.

We thank the Office of Naval Research and the Whitaker Foundation for their major financial support, and Metrasystems and Sun Microsystems for their exhibits and contributions. Special thanks are due to members of the Program Committee for their efforts on behalf of the Conference. Finally, we thank the many participants, whose enthusiastic contributions made the whole Conference worthwhile.

Kenneth R. Foster

Editor and Conference Chair

ROSTER OF THE

NORTHEAST BIOENGINEERING CONFERENCES

CONFERENCE	YEAR	LOCATION
First	1973	University of Vermont
Second	1974	Worcester Polytechnic Institute
Third	1975	Tufts University
Fourth	1976	Yale University
Fifth	1977	University of New Hampshire
Sixth	1978	University of Rhode Island
Seventh	1979	Rensselaer Polytechnic Institute
Eighth	1980	Massachusetts Institute of Technology
Ninth	1981	Rutgers University
Tenth	1982	Dartmouth College
Eleventh	1985	Worcester Polytechnic Institute
Twelfth	1986	Yale University
Thirteenth	1987	University of Pennsylvania

Future Meetings

Fourteenth	1988	University of New Hampshire
Fifteenth	1989	Northeastern University

VOLUME 1

PLENARY SESSION I
THURSDAY AM

DAVID RITTENHOUSE LABORATORY A-1

8:20 Welcome

PLENARY SESSION II
FRIDAY AM

DAVID RITTENHOUSE LABORATORY A-1

BANQUET TALK
THURSDAY PM

EGYPTIAN ROOM, UNIVERSITY MUSEUM

SESSION 1 THURSDAY AM

DAVID RITTENHOUSE LABORATORY A-1

FRACTAL FORUM

CHAIR: B. Onaral
Elect. & Comp. Eng., Drexel Univ.

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DAVID RITTENHOUSE LABORATORY A-2

IMAGING I

CHAIR: E. W. Hansen
Thayer School of Engineering, Dartmouth Coll.

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Dept. of Biomedical Eng., Univ. of PA

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DAVID RITTENHOUSE LABORATORY A-5

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Biomed. Eng. & Instrumen. Br., NIH

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CARDIOLOGY I (ELECTROCARDIOGRAPHY)
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Elect. and Comp. Eng., Northeastern Univ.

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DAVID RITTENHOUSE LABORATORY A-8

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CHAIR: R. Gaumond
Dept. of Bioengineering, Penn State Univ.

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DAVID RITTENHOUSE LABORATORY A-1

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Dept. of Bioengineering, Univ. of PA

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DAVID RITTENHOUSE LABORATORY A-2

IMAGING II

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Dept. of Radiation Ther., Univ. of PA

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BIOMECHANICS II (MOTION ANALYSIS)

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Newington Childrens' Hospital

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DAVID RITTENHOUSE LABORATORY A-5

SENSORY PHYSIOLOGY I

CHAIR: G. Buchsbaum
Dept. of Bioengineering, Univ. of PA

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DAVID RITTENHOUSE LABORATORY A-6

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CHAIR: W.J. Ohley
Dept. of Electrical Eng., Univ. of RI

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DAVID RITTENHOUSE LABORATORY A-8

INSTRUMENTATION II

CHAIR: J. LaCourse
Elect. & Comp. Eng., Univ. of NH

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Dept. of Bioengineering, Univ. of PA

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Dept. of Eng. & Comp. Sci, Trinity College

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Chemical Engineering, Northeastern Univ.

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CHAIR: Michael Boas
Nat'l Biomed. Res. Found.

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CHAIR: N. Bilgutay
Electrical and Computer Eng. Drexel Univ.

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CHAIR: M. Litt
Dept. of Bioengineering, Univ. of PA

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DAVID RITTENHOUSE LABORATORY A-2

AEROSPACE BIOENGINEERING
CHAIR: L. Hrebien
Naval Air Development Center

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Mt. Sinai Hospital

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Genesee Hospital (Rochester NY)

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Dept. of Rad. Therapy,
Thomas Jefferson Univ.

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Elect. & Comp. Eng., Drexel Univ.

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Orthop., Univ. of VT

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BIOHEAT TRANSPORT

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Vet. Biosciences, Univ. of IL

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CHAIR: C. Grosse
Dept. of Physics, Univ. Nac. Tucuman, Argentina

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Medical College of PA