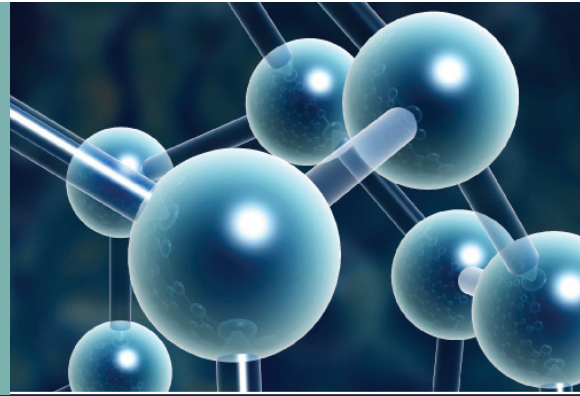


# 2009 NOBEL LAUREATE LECTURE



## Decision Making in a Rodent Brain: Contributions of Cortical Columns

**Bert Sakmann, M.D., Ph.D.**

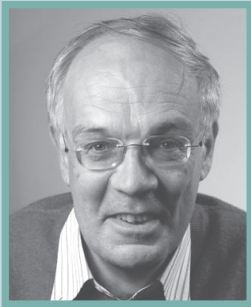
1991 Recipient of the Nobel Prize in Medicine  
Director, Max Planck Institute of Neurobiology, Munich

Presented by the Charles E. Schmidt College of Science,  
the Division of Research, the Max Planck Florida Institute  
and the Max Planck Institute of Neurobiology, Munich

**Friday, February 6, 2009**

Libby and Harry Dodson Auditorium  
Christine E. Lynn College of Nursing Building  
Florida Atlantic University  
Boca Raton, Florida

# Bert Sakmann, M.D., Ph.D.



Dr. Bert Sakmann studied at the universities of Tübingen and Munich in Germany, graduating in 1967. Much of his professional life has been spent in various institutes of the Max Planck Society. In 1971, a British Council Fellowship took him to the Department of Biophysics of University College (London) to work with Bernard Katz, the 1970 co-recipient of the Nobel Prize in Medicine for discoveries concerning the humoral transmitters in the nerve terminals and the mechanism for their storage, release and inactivation. In 1992, in honor of Professor Katz, Dr. Sakmann together with the Max Planck

Institute for Medical Research in Heidelberg established the Bernard Katz Minerva Center for Cell Biophysics. Dr. Sakmann currently serves as director of the center. In addition, he established the annual Bernard Katz prize lecture from part of his Nobel Prize money. Dr. Sakmann also serves as director of the Hebrew University of Jerusalem and the Technion-Israel Institute of Technology in Haifa.

In 1974, Dr. Sakmann obtained his Ph.D. from the University of Göttingen and with Erwin Neher, at the Max-Planck Institute für Biophysikalische Chemie, began the work which was to revolutionize cellular biology and neuroscience and win them the 1991 Nobel Prize in Medicine. The patch clamp technique involves attaching tiny glass pipettes directly to a cell, making very precise measurements of the electrical flow possible. This allows researchers to measure the electrical current going in and out of individual ion channels of a cell.

Dr. Sakmann's many significant discoveries have revolutionized our knowledge of the workings of cells, particularly nerve cells. His important development of the patch clamp for measuring electrical activity and chemical flow across cell membranes and single ion channels resulted in a technique that is now commonplace in laboratories throughout the world. In addition to his numerous articles, Dr. Sakmann has jointly edited "Single Channel Recording."

His subsequent work has led to the development of many important drugs used for diseases of the circulation and nervous system. This research identified the very sophisticated interplay of channels across the membranes of cells which regulate the flow of sodium, potassium and calcium ions in response to chemical signals acting on the cells during nerve stimulation. More recently, Dr. Sakmann identified mechanisms that lead to experience dependent changes in the connections between nerve cells in the brain.

Dr. Sakmann's work has attracted many prestigious awards, among them the Spencer and Gross-Horwitz prizes in the United States and the Feldberg Prize of the Feldberg Foundation of London. In 1999, he was appointed an Eminent Scholar of the University of Melbourne, Victoria, Australia.

# PROGRAM

4 – 5:30 p.m.

## Welcome

Dr. Ramaswamy Narayanan, Chair, Department of Chemistry and Biochemistry  
Charles E. Schmidt College of Science  
Chair, 2009 Nobel Laureate Lecture

## Opening Remarks

Frank T. Brogan, President  
Florida Atlantic University

## Remarks

Dr. Claudia Hillinger  
Vice President for Institute Development  
Max Planck Florida Institute


## Presentation

Dr. Bert Sakmann  
1991 Recipient of the Nobel Prize in Medicine  
Director, Max Planck Institute of Neurobiology, Munich

## Concluding Remarks

Dr. Gary Perry, Dean  
Charles E. Schmidt College of Science  
Dr. Ramaswamy Narayanan





On behalf of Florida Atlantic University and the Max Planck Florida Institute, we are pleased to welcome you here today, and we thank you for joining us at the 2009 Nobel Laureate Lecture with our honored guest, Dr. Bert Sakmann.

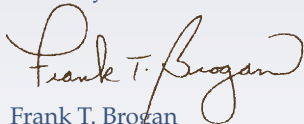
Dr. Sakmann, together with physicist Erwin Neher, was awarded the 1991 Nobel Prize in Medicine for inventing the patch clamp technique. This ground-breaking technique made it possible to examine individual ion channels—pore-forming proteins found in the outer membranes of virtually all cells that serve as conduits for electrical signals. This technique opened new paths in the study of membrane physiology. In fact, the Nobel Prize Committee credited Drs. Sakmann and Neher with revolutionizing modern biology.

FAU's John D. MacArthur Campus in Jupiter is very soon to become home to the Max Planck Society's 80th institute—and the first in the United States. Scientists from the Max Planck Florida Institute will be working in temporary facilities on the Jupiter campus until the institute's permanent 100,000-square-foot building is completed. The Florida facility will focus its scientific activities on bioimaging, using the most advanced techniques for visualization of microscopic molecular processes to achieve a deeper understanding of the structure, dynamics and function of molecules and tissues in order to tackle challenging problems in biology, bioengineering and medicine. Max Planck Florida will be closely linked with universities in Florida, particularly Florida Atlantic University, and will work with the local research facilities of Scripps Florida and others including those in the business sector, to considerably speed up the formation of a strong biotech cluster in Florida. Along with forming these important relationships, the Max Planck Florida Institute will have a direct impact on the quality of life in Palm Beach County by employing a workforce of well-educated, highly skilled men and women who will have much to contribute to the greater community.

We look forward to a very fruitful academic and scientific collaboration between FAU and the Max Planck Florida Institute. Our partnership will pave the way for cooperative research projects of mutual interest, joint-use facilities, affiliate faculty appointments at FAU, improved student training opportunities and joint seminars and public forums. Our joint Nobel Laureate Lecture is the first in a series of programs we are committed to providing to our community to help advance biomedical research in Florida.

We gratefully acknowledge the support of Dr. Sakmann, our sponsors and each of you who is here with us today. We are most thankful for the support we received from so many people in the local community as we worked to bring the Max Planck Institute to Florida and to FAU's Jupiter campus.

Sincerely,



Frank T. Brogan  
President, Florida Atlantic University



Claudia Hillinger, Ph.D.  
Vice President for Institute Development  
Max Planck Florida Institute

# Where you need us and positioned to make a difference.



We are proud to sponsor the Florida Atlantic University 2009 Nobel Laureate Lecture as they welcome Professor Bert Sakmann, Ph.D., Director of the Max Planck Institute of Neurobiology. We are honored to be guiding Max Planck Florida Corporation in all aspects of its establishment of the Max Planck Florida Institute.

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**FLORIDA ATLANTIC  
UNIVERSITY**

**Is Proud to Welcome  
Our Honored Guest**

Bert Sakmann, M.D., Ph.D.

1991 Recipient of the Nobel Prize in Medicine

**FAU**<sup>TM</sup>

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**CHARLES E. SCHMIDT  
COLLEGE OF SCIENCE**  
Florida Atlantic University

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**DIVISION OF RESEARCH**  
Florida Atlantic University

# SPECIAL ACKNOWLEDGEMENTS

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**Dr. Ramaswamy Narayanan**

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Charles E. Schmidt College of Science  
Chair, 2009 Nobel Laureate Lecture

**Dr. Gary Perry**

Dean  
Charles E. Schmidt College of Science

**Dr. Claudia Hillinger**

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Interim Vice President for Research  
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