

# HUNGARIAN SCIENTISTS IN THE US: YESTERDAY, TODAY AND TOMORROW

A Glimpse at the Achievements of Hungarian Scientists on this Side of the Atlantic



Monday, April 25, 2011, 4:30 pm – 9 pm

Place: School of International and Public Affairs, Room 1512, Columbia University  
420 West 118th St. 15th Floor New York, NY 10027



eu 2011.hu

New York, April 18, 2011

Dear Guests,

We are here to celebrate the individual, the invincible creativity of the human spirit and mind that stems from the cooperation and common knowledge of the people but is able to identify and tackle goals that the common eye cannot see or even imagine.

The great achievements of Hungarian scientists exemplifies a combination and cooperation of the best of both Worlds, that of Europe and the United States, that through generations made our civilization stronger and the world safer, often in times when the motherlands of these very scientists were endangered and occupied. Education as the best investment in society could not bring a better harvest than the life-changing inventions of scientists that strengthen the world of freedom and propels the Trans-Atlantic relationship to maintain its leading role in shaping the future and identity of generations to come so that they value all those principles that are so fundamental to innovation.

The increased focus on Hungarian contribution to science in the United States fits well with Hungary's wider foreign policy agenda. Hungary is holding the EU Presidency the first half of this year and in this role we continue the work of our predecessors to simplify the process for implementation of Research, Development and Innovation projects, which we believe is key to maintain a more competitive European Union.

Inventions and achievements on a global scale coupled with strong patriotism and dedication to our roots is the recipe for progress and prosperity. I am utterly proud of the example and achievements of my compatriots, who are represented here today by a select group of mere excellence.

Sincerely,

Ambassador Károly Dán  
Consul General of Hungary, New York

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Columbia University  
420 West 118<sup>th</sup> St. 15<sup>th</sup> Floor  
New York, NY 10027

## Program

### 4:30-5:00 **Opening**

Chairman: András Prékopa, Professor, Rutgers University, Professor Emeritus, Eötvös University, member of the Hungarian Academy of Sciences  
4:30-4:40 Opening remarks: Ambassador Károly Dán, Consul General of Hungary, New York,  
4:40-4:50 Opening remarks: John Micgiel Director, East Central European Center, Columbia University  
4:50-4:55 Welcoming remarks: Zsófia Trombitás, Consul  
4:55-5:00 Welcoming remarks: János Bergou, President of the NYHSS

### 5:00-5:15 **Coffee break**

**5:15-6:15 Session 1: Hungarian Science: The early days**  
Chairman: István Deák, Professor emeritus, Columbia University, External member of the Hungarian Academy of Sciences  
5:15-5:30 Péter Lax: John von Neumann: mathematics, computing, and technology.  
5:30-5:45 Attila Pók: Some aspects of Hungarian creativity in modern social sciences and humanities  
5:45-6:00 István Hargittai: Edward Teller and Nuclear Safety  
6:00-6:15 Ábel Lajtha: Albert Szent-Györgyi

### 6:15-6:25 **Coffee break**

**6:25-8:10 Session 2: Hungarian Science: Today and Tomorrow**  
Chairman: János Bergou, Professor, CUNY Hunter College, DSc of the Hungarian Academy of Sciences,  
6:25-6:40 Albert-László Barabási: Scale-free networks  
6:40-6:55 György Buzsáki: Neural syntax and cognition  
6:55-7:10 László Záborszky: Basal forebrain: Anatomy to function  
7:10-7:25 Péter Lévai: Strongly interacting quarks in the Large Hadron Collider  
7:25-7:40 Szabolcs Márka: The search for gravitational waves  
7:40-7:55 Zoltán Haiman: The Life and Times of Black Holes Throughout Cosmic Time  
7:55-8:10 Questions and Answers

**8:10-8:15 Closing remarks**  
Ambassador Károly Dán, Consul General of Hungary, New York

8:15 **Refreshments and Hungarian wine**

April 14, 2011

Dear Distinguished Colleagues, Esteemed Guests of the Hungarian Scientific Conference in New York:

Loker Hydrocarbon  
Research Institute

George A. Olah  
Nobel Laureate  
Distinguished Professor  
Founding Director

As the Patron of the Hungarian Scientific Conference in New York it is my privilege to welcome you all.

I wish I were able to attend the Conference myself, especially since we are currently celebrating *The International Year of Chemistry*. Alas life has intervened and I can only be with you in my thoughts and wish you and for the Conference the greatest success.

I am certain that bringing together academics of Hungarian origin in America, who follow in the footsteps of their world-renowned predecessors and continue the undeniably impressive Hungarian contribution to science, will be undoubtedly a great success.

The highest concentration of highly qualified and internationally recognized Hungarian academics and researchers outside of Hungary can be found in the areas of New York City, Los Angeles and Washington D.C. It is hence my sincere hope that similar Hungarian scientific societies will be established throughout the U.S. to spread the fame of the Hungarian achievements and find out ways how this talent may radiate back to Hungary.

I would be delighted to know if this conference were the first of many, and I welcome the considerable enthusiasm with which colleagues, academic institutions such as the Hungarian Consulate General in New York and Columbia University have made this event possible. As this is the first Hungarian Scientific Conference in New York, the foundations of its success are dedication, creativity and commitment, which have been offered by many devoted individuals. And that dear colleagues and friends is what scientific endeavor is really all about.

Very sincerely yours,



George Andrew Olah  
Nobel Laureate in Chemistry  
Distinguished Professor of Chemistry  
and Engineering



**George Andrew Olah**

George Andrew Olah was born May 22, 1927, in Budapest, Hungary, nine years after the close of World War I and two years before the Great Depression. His parents were Julius Olah and Magda Krasznai. He grew up during tumultuous years, which included World War II, when Hungary was again on the losing side of a war.

The Olah family lived a middle-class life and Olah received his early education at a Catholic Gymnasium where he studied humanities and languages. He then attended the Technical University of Budapest. He chose a major in chemistry. The university followed a rigorous program where only the most successful students were allowed to remain. Small class sizes and an emphasis on achievement meant Olah received a good foundation for his research. After graduation, he became an unpaid research assistant to his professor, Geza Zemplen. Olah was interested in fluorine chemistry. He needed to pay for his own material and equipment. When the fumes from his projects became too noxious, Zemplen agreed to allocate space that included a balcony, so that the odors could be vented. Olah referred to this as his "balcony laboratory." In 1949, he married Judith Lengyel. They had known each other since childhood, and she was a secretary at the Technical University. Since the Soviet approach to

research favored research institutes rather than university settings, in 1954, Olah joined the Central Chemical Research Institute of the Hungarian Academy of Sciences and started a research project in organic chemistry. Also in 1954, his first son was born, George John.

The popular uprising in 1956 brought more unrest to Hungary. The Olahs, and 200,000 other Hungarians, left the country. The Olah family went first to London, then Montreal, then Sarnia, Ontario, where Olah worked for Dow Chemical. He rose to the title of company Scientist. His second son, Ronald Peter, was born in 1959. Olah began his work on carbocations at this time. Olah transferred to the Dow facility in Massachusetts in 1964, and then joined the faculty at Western Reserve University in Cleveland in 1965 as professor and department Chair. When the chemistry departments of Western Reserve University and Case Institute of Technology were merged in 1967, Olah served at Chair of the joint department until 1969 when he returned to research fulltime.

In 1976, he accepted an appointment to the University of Southern California at Los Angeles in the newly established Loker Hydrocarbon Research Institute, where he is currently Distinguished Professor and Loker Chair in Organic Chemistry.

**Olah was awarded the Nobel Prize in Chemistry in 1994** for his research in carbocation chemistry and for uncovering new ways to use hydrocarbons in the petroleum industry.. His current research involves converting excess carbon dioxide and methane into fuels and derivatives and a methanol fuel cell. Olah has authored over 1000 papers and 15 books, and he holds more than 100 patents. The George A. Olah Award in Hydrocarbon or Petroleum Chemistry, formerly the ACS Award in Petroleum Chemistry, is awarded from an endowment initially funded by The Morris S. Smith Foundation and the Dow Chemical Company.



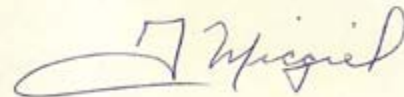
COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK  
EAST CENTRAL EUROPEAN CENTER

Hungarian Scientific Society  
c/o Consulate General of the Republic of Hungary  
223 East 52nd Street  
New York, NY 10022

April 14, 2011

Dear Colleagues:

On behalf of Columbia University, I welcome the members, future members, and supporters of the Hungarian Scientific Society, whose establishment heralds a new chapter in the history of Hungarians and especially Hungarian academics living in the United States. The mission of the Society, as I understand it, is to advance knowledge about Hungary and Hungarian America in the United States. It can organize multi-disciplinary conferences on Hungarian studies, and cooperate with other American academic organizations, such as the Association for the Study of Nationalities, and the Association for Slavic, East European and Eurasian Studies (formerly the AAASS). The Society can act as a forum for the exchange of ideas, much in the same way as other professional societies do. Columbia University, and its esteemed Institute on East Central Europe, has cooperated with other American scholarly institutions with their roots in East Central Europe, such as the Austrian Academy of Sciences, the Czechoslovak Academy of Arts and Sciences, the Ukrainian Academy of Arts and Sciences, the Ukrainian Institute, the Taras Shevchenko Society, the American Hungarian Educators Association, the Society for Slovene Studies, the Pilsudski Institute, and the Polish Institute of Arts and Sciences. In fact, the East Central European Institute hosted the Second Congress of Polish-American Scholars and Scientists at Columbia University exactly 40 years ago, on April 23-25, 1971. We at Columbia are very pleased that we can provide a helping hand to the Hungarian Scientific Society as it develops its activities, and we hope to host another meeting of the Society on some auspicious occasion in the future. Minden jót, soksikert kíván,



John S. Micgiel  
Columbia University

Mail Code 3336 420 West 118th Street New York, NY 10027 212-854-4008 Fax 212-854-8577



**John S. Micgiel**

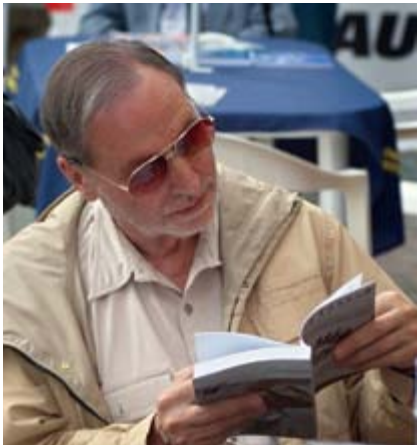
Dr. John S. Micgiel teaches the modern history and politics of East Central Europe at Columbia University, where he serves as Executive Director of the East Central European Center and Associate Director of the Harri-man Institute. His teaching and research bring him to the region often, particularly to Poland and Estonia, his publications include 10 edited volumes on the region.



From across the seas, it is my honor and pleasure to send my greetings to the participants of the „Hungarian Scientists in the US: Yesterday, Today and Tomorrow” conference held at my alma mater. I can’t help but to remember the important role the great Hungarian physicist Leo Szilard, working here more than seven decades ago, played in calling attention to what was a real danger at the time: that Nazi Germany will have a monopoly on a weapon of mass destruction of then unimaginable power. We all know what an important role Hungarian scientists played in the Manhattan project in the development of the atom bombs that finally ended World War II.

I trust that you can all join me in the hope that men of science around the world will never again have to live with similar pangs of conscience Leo Szilard had to live with after Nagasaki, but rather, will be able to work for the benefit of all mankind in all its wonderful diversity.

László Bitó  
Budapest



**László Bitó**

László Bitó, born in Budapest in 1934, started his education there but due to his family’s so-called bourgeois

social status, was deported, together with his family, to a small provincial settlement in Hungary in 1951. For two years, from 1954 to 1956, he worked in a forced labor unit in the coal mines of Komló, in the South of Hungary. Here, in secret, he started writing short stories and taking notes for novels. During the October 1956 anti-Soviet uprising revolution, he organized a labor camp revolt and was elected president of the local revolutionary committee. Following the Soviet invasion, he escaped to Austria and emigrated to the United States. Supported by scholarships and fellowships, László Bitó earned a B. A. in 1959 in chemistry and biology at Bard College located in Annandale-on-

Hudson, New York, followed by a Ph.D. at Columbia University in Biophysics and Medical Cell Biology in 1963. After post-doctoral training with Prof. Hugh Davison at the University of Louisville in Kentucky, and University College in London, he spent most of his academic career at Columbia University in New York. From 1967 to 1974, he served as Assistant Professor of Ophthalmology; from 1975 to 1977 as Senior Research Associate and Head of the Ocular Physiology Laboratory of the College of Physicians and Surgeons at Columbia University; from 1980 to 1997 as Professor of Ocular Physiology, and since 1998 as Professor Emeritus and Special Lecturer. In 2004, he was the recipient of one of Columbia’s highest tributes: the Columbia University Award for Distinguished Achievement. From 1975 to 1997 he also worked as visiting professor at the Department of Ophthalmology at the University of Puerto Rico.

Laszlo Bito is one of the world’s best known and most distinguished experts in eye research; he has published more than 150 frequently cited scientific articles as well as several monographs. Since the early 1970s, he has been a key figure in all major conferences in eye research and he has served as reviewer, referee or editor for the field’s leading journals (Investigative Ophthalmology and Visual Science; Current Eye Research; Ophthalmology; Prostaglandins; The Journal of Pharmacology and Experimental Therapeutics etc.). His honors inclu-

de the Proctor Medal (2002) awarded by the Association for Research and Vision in Ophthalmology (the top distinction in the field of eye research); the Alcon Research Institute Award (1985); the Endre Balázs Prize for Outstanding Contribution to Experimental Eye (1988) and the Samuel Bard Award for Medicine Research (2001). He is best known for the eye pressure-lowering glaucoma drug XALATAN. Based on his patents, this drug has been marketed by Pharmacia and Upjohn worldwide starting in 1997. The drug and his life story were featured in a major front page article in the New York Times (April 23, 2000), while Pharmacia received the Drug of the Year Award in 2002.

In 1998, Professor Bito retired from Columbia, moved back to his native Hungary and began his career as a writer. He has published a great number of novels and articles chiefly on his life as well as biblical stories (as e.g. Abraham and Isaac, first 1998, The Teachings of Isaac, first 2000, Isaac and Nazareth, first 2002) in Hungarian, French, German, English, Romanian, Slovak, Russian.) He is especially interested in the culture of death and dying, having written a book (2005) and organized a television series on the issue.

Together with his wife Olivia who shares in all his philanthropic activities, Laszlo Bito is a major benefactor of cultural and welfare programs, including the István Deák Visiting Professorship at Columbia University in New York.





**András Prékopa**

András Prékopa was born in Nyíregyháza, Hungary. He received his BA and MA degrees in mathematics and physics from the University of Debrecen in 1949 and, 1952, respectively. In 1952 he became a PhD student (aspirant) at the Institute for Applied Mathematics of the Hungarian Academy of Sciences (HAS) and defended his thesis, entitled “On Stochastic Set Functions”, in 1956. Between 1956-68 he was first assistant, later associate professor at the Department of Probability Theory of the L. Eötvös University. In 1968 he became full professor at the Department of Mathematics of the Technical University of Budapest, where he remained until 1983. In that year he returned to the Eötvös University, and became the founder, professor and first chairman of the Department of Operations Research (OR). He retired from there in 2000.

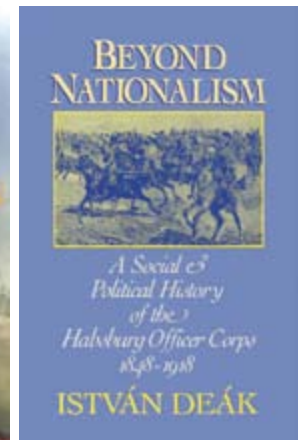
Since 1985 he has been distinguished professor of OR, statistics and mathematics at Rutgers University. Currently he is the graduate director of the PhD program in OR. Prékopa’s part-time appointments were also very important in his scientific career in Hungary. In 1958 he founded the first research department in OR at the Math. Inst. of the HAS and in 1977 the Department of Applied Math. at the Computing and Automation Inst. of the HAS. Prékopa is the father of the Hungarian OR in many ways: developed research school, education curricula, organized international and local conferences, formed academic committee, founded scientific periodical, etc. He published more than a dozen books and about 350 papers alone and with co-authors and supervised 51 PhD students, many of them are internationally known academics and industrial leaders, all-over the world. In 1979 he was elected a corresponding member and in 1985 full member of the HAS. He was also elected a foreign member of the National Academy of Engineering of Mexico, fellow of the Econometric Society, member of the International Statistical Institute, honorary president of the J. Bolyai Math. Society and the Hungarian OR Society, among others. He is the recipient of the Széchenyi Prize (1996) and Middle Cross of the Republic of Hungary (2005). The highest recognition he was awarded for his achievements is the Gold Medal of the European OR Societies, a major international distinction that Prékopa received in 2003. He is married to Kinga Széchenyi, educator, sculptor and writer, they have two children and two grandchildren.



**István Deák**

István Deák, who is Seth Low Professor Emeritus at Columbia University, was born in Hungary; since 1956 he has been residing in New York City. He obtained his PhD degree at Columbia University in 1964. He was the Director of

the University’s Institute on East Central Europe between 1968 and 1979. His publications include, Weimar Germany’s Left-wing Intellectuals: A Political History of the “Weltbühne” and Its Circle (1968); The Lawful Revolution: Louis Kossuth and the Hungarians, 1848-1849 (1979); Beyond Nationalism: A Social and Political History of the Habsburg Officer Corps, 1848-1918 (1990); Essays on Hitler’s Europe (2001), and Marina Cattaruzza and István Deák, Il processo di Norimberga tra storia e giustizia (2006). He edited and partly wrote, together with Jan T. Gross and Tony Judt, The Politics of Retribution in Europe: World War II and Its Aftermath (2000). He is a frequent contributor to The New York Review of Books and The New Republic; his current research deals with collaboration, resistance, and retribution in World War II Europe.



Dear Distinguished Colleagues, Ladies and Gentlemen,

On behalf of the recently founded New York Hungarian Scientific Society, co-organizers of this conference, I'd like to extend my warmest welcome to all of you in attendance. Your presence and active participation is very important to us, it sends a strong signal of support for our cause.

Since ours is a young Society the story of how we came to existence is rather short. The first in a series of events was a reception at the Rockefeller University held in the fall of 2009. It commemorated the occasion that the current and previous presidents of the University – both of whom Nobel Prize winners – were elected to Honorary Membership of the Hungarian Academy of Science. For this event former Consul General Viktor Polgár and Professor László Záborszky, with help from the Hungarian Academy, compiled a list of Hungarian academics working in the greater New York area. At the meeting itself Consul Zsófia Trombitás recognized that the people in attendance barely knew each other and there is need for a forum where scholars from all venues of academic life could meet and learn more about each other. She conceived the idea of the Society. About the same group of people was invited to a reception at the Consulate held in September of 2010. The occasion was the visit of the President of Hungary who expressed an interest in meeting with Hungarian scientists of the Metropolitan area. In preparing for this meeting Zsófia proposed the foundation of a Hungarian Scientists' Club to the President and the Foreign Minister of Hungary. They supported the idea and so the NYHSS was founded at the reception. As an organized body such a forum can represent its membership in establishing official relations with other organizations, including academic and higher education institutions of Hungary. When naming the Society, we used the word "Scientific" in the same broad sense as it is used in the name of the Hungarian Academy of Science: science in Hungarian refers to all scholarly activities. Among our members we already have representatives from many branches of the academic enterprise and we invite everybody interested to join.

Since its inception, the Society organized several public events, all of them with the help and support of the Hungarian Consulate. Ambassador Károly Dán, Consul General of Hungary lent generous moral and financial support, space and labor from the beginning, without which we would not be here today. Of all the events we organized so far, no doubt the current one is the largest. If successful and there is continued interest, we plan to organize similar meetings on future occasions.

The establishment of the Society is an important milestone in the public life of Hungarian academics in and around the Big Apple. In addition to providing a forum for our members our mission is to promote science to the general public by disseminating its results in forms of public talks and conferences that go across several disciplines; and to advance awareness about Hungary and the achievements of Hungarians on this side of the Atlantic. We are looking forward to cooperating with other organizations that share similar goals. Finally, I would like to express my gratitude to all of the organizers who made this event possible. In particular, we thank the Consulate General for sponsoring and co-organizing and Columbia University for hosting the event and Zoltán Tardos for preparing the beautiful brochure. I wish all of us a successful meeting.

János Bergou, President, NYHSS



**János Bergou**

János Bergou is professor of physics at the Department of Physics and Astronomy, Hunter College of the City University of New York. He graduated from the Eötvös József Gimnázium and went from father to son, receiving his physicist diploma from the Eötvös Loránd University in Budapest in 1970. He joined the Central Research Institute for Physics and worked on problems involving the interaction of intense laser radiation with matter, for which he obtained his PhD, also from the Eötvös University, in 1975. He obtained the Candidate of Science degree in 1982 and the Doctor of Science degree in 1994, both from the Hungarian Academy of Sciences. He received the Young Scientist Award of the

Hungarian Academy of Sciences in 1976, the Pál Selényi Award of the Hungarian Physical Society in 1981 and the Research Award of the Hungarian Academy of Sciences in 1983. In 1983-84 he was recipient of a Humboldt fellowship at the Max-Planck-Institute for Quantum Optics in Munich and in 1986-88 he spent three years as visiting professor at the University of New Mexico in Albuquerque and the Los Alamos National Laboratory. During this time his interest started to include quantum optics and the quantum theory of lasers. In 1990 he joined the faculty of the City University of New York. His current research interest is the newly emerging field of quantum information theory, at the intersection of physics, computer science and mathematics. He is a frequent visitor to the University of Pécs where he holds a joint appointment and is the founding director of the Institute of Physics, which he founded in 1998 during his sabbatical leave. In his fields he is the author of nearly 200 papers, two books, and several book chapters. He educated about 15 PhD students and worked with 10 postdoctoral research associates. For his results in the area of quantum optics he has been elected to Fellow of The American Physical Society and also to Fellow of The Optical Society of America.





**Peter David Lax**

**Born:**

May 1, 1926, Budapest, Hungary

**Degrees/education:**

AB New York University 1947  
PhD New York University 1949  
Positions: Staff Member, Los Alamos Scientific Laboratory, 1945-46  
Staff Member, Los Alamos Scientific Laboratory, 1950  
Assistant Professor, New York University, 1951  
Associate Professor, New York University, When?  
Professor, New York University, 1958-  
Visiting positions: Fulbright Lecturer, Germany, 1958

**Membership:**

Academics des Sciences, (Paris) 1982  
National Academy of Sciences, USA 1982  
American Academy of Arts and Sciences, USA 1982  
New York Academy of Sciences, 1982

The Russian Academy of Sciences, 1989  
The Hungarian Academy of Sciences, 1993  
Academy Sinica, Beijing 1993  
Moscow Mathematical Society, 1995  
London Mathematical Society, 1997

**Prizes:**

Lester R Ford Award (1966 and 1973)  
von Neumann Lecturer, SIAMI 1960  
Chauvenet Prize, 1974  
Norbert Wiener Prize, 1975  
National Academy of Sciences, Award in Applied Mathematics, 1983  
National Medal of Science, 1986  
Wolf Prize, 1987  
Leroy Steele Prize, 1992  
Abel Prize, 2005  
SIAM Prize for Distinguished Service, 2006

**Honorary degrees:**

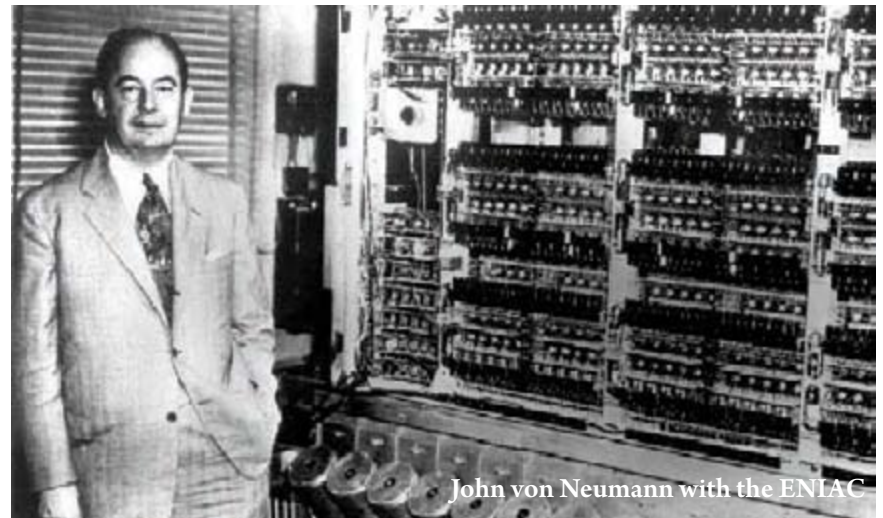
Kent State University, 1975  
University of Paris, 1979  
RWTH Aachen, 1988  
Heriot-Watt University, 1990  
Tel Aviv University, 1992  
University of Maryland, Baltimore, 1993  
Brown University, 1993  
Beijing University, 1993  
Texas A & M University, 2000

**Presidencies:**

American Mathematical Society, 1977-80  
Director, Courant Institute, 1972-80



**John von Neumann: mathematics, computing, and technology.**



John von Neumann with the ENIAC

John von Neumann was one of the leading mathematicians of the 20th Century, but he was much more. Had he lived an abnormal span of years, he would have certainly been honored by a Nobel Prize in Economics, an Abel Prize in Mathematics, and a Nobel Prize in Computer Science (to be established).

He created the abstract theory of Hilbert space, the theory of selfadjoint operators which are the foundation of quantum mechanics, the Theory



of Games and its applications in Economics, and much, much more. His works are collected in six volumes. He was one of the inventors of the modern computer, and a pioneer in scientific computation. He made basic contributions to the atomic bomb project, and after the War was one of the chief advisers to the US Government on scientific matters and technology. All who knew him were overwhelmed by the power of his brain.







**Attila Pók**

(Born 1950 in Budapest, Hungarian citizen)

**EDUCATION**

2010 Habilitation at Lorand Eotvos University, Budapest 1988 Candidate of Historical Science (Degree awarded by the Hungarian Academy of Sciences) 1976 Ph.D. Loránd Eötvös University, Budapest in Modern History 1968-1973 Student of History & English at Loránd Eötvös University, Budapest

**ACADEMIC EXPERIENCE, ACTIVITIES**

2010-Member of the General Assembly and of the Presidium of the Hungarian Academy of Sciences 2007-General secretary of the Hungarian Historical Association 2003-2006 Expert representative of Hungary in the Program Committee of Priority 7 (Citizens and Governance in a Knowledge Based Society) of FP 6 of the European Union 2003-2008 Member of the Steering Committee of the European Science Foundation Project: Representations of the Past: The Writing of National

Histories in Europe 2001-2004 Member of the Board for Social Sciences and Humanities of the Hungarian Academy of Sciences 2001-2002 Director of the Center for Social Studies of the Hungarian Academy of Sciences 1999-2000, 2002, 2005, 2008, 2011 Visiting Professor of History at Columbia University in New York 1996-2008 Vice-chairman of the Commission of History of the Hungarian Academy of Sciences 1996-Deputy director of the Institute of History of the Hungarian Academy of Sciences 1995-2000 Member of the Bureau of the International Commission for the History of Historiography of the International Committee of Historical Sciences 1995-1999 Chairman of the Board of Foreign Scholarships, Soros Foundation, Hungary General secretary of the Hungarian Council of the European Movement 2001-Vice-president of the Hungarian Council of the European Movement 1993 Visiting ass. prof. University of Chicago 1992-Full member of the Academia Scientiarum et Artium Europaea (Salzburg, Austria) 1991 Member of the Council on Ethnic Accord of the Project on Ethnic Relations (Princeton, USA) 1990-1996 Secretary of the Commission of History of the Hungarian Academy of Sciences 1990-Deputy director of Europa Institute Budapest 1988-Member of the Faculty of the Institute of European Studies, Vienna. Courses on the history of Eastern Europe 1848-1945. 1988-1996 Academic secretary of the Institute of History of the Hungarian Academy of Sciences 1986-1995 Member of the Faculty of College Europa Program, St. John's University (New York) in Budapest. Courses on the "Making of Modern Europe 1789-1945" 1977-1990 Secretary of the editorial board of Acta Historica, semi-annual

review of the Hungarian Academy of Sciences 1974 Research fellow of the Institute of History of the Hungarian Academy of Sciences

**AREAS OF RESEARCH, TEACHING EXPERIENCE & INTEREST**

19th & 20th century European & Hungarian political & intellectual history History of 19-20th century European & Hungarian historical writing Theory & methodology of history History of nationalism

**MAJOR BOOK PUBLICATIONS**

A haladás hitele (The Credit of Progress) Akadémiai Kiado, Budapest, 2010. 364 p.

The Politics of Hatred in the Middle of Europe. Scapegoating in Twentieth Century Hungary: History and Historiography. Savaria Books on Politics, Culture and Society. Savaria University Press, Szombathely, 2009. 168 p. A nemzetközi politikai élet krónikája 1945-1997. (A Chronicle of International Politics 1945-1997) MTA Történettudományi Intézete, Budapest, 1999. 413 p.

A Selected Bibliography of Modern Historiography (Bibliographies & Indexes in World History, Number 24) Greenwood Press, New York-Westport, Connecticut-London, 1992. 286 p.

A magyarországi radikális demokráta ideológia kialakulása (The Formation of Radical Democratic Ideology in Hungary) Akadémiai Kiadó, Budapest, 1990. 196 p.

A nemzetközi politikai élet krónikája 1945-1985 (A Chronicle of International Politics 1945-1985) Móra, Budapest, 1986. 308 p.

A Huszadik Század körének történetfelfogása (The Review Huszadik Század (Twentieth Century) on History) Selected, edited & introduction.) Gondolat, Budapest, 1982. 436 p.

**DECORATION**

Knight's Cross of the Hungarian Republic (2006)

**Some aspects of Hungarian creativity in modern social sciences and humanities**

The presentation will first discuss the social and political background of a few Hungarian social scientists who substantially enriched their fields throughout the twentieth century. Many of them were born in the 1880s and early 1890s and their formative years were greatly shaped by the political, cultural, social environment of pre-World War One and World War One Hungary. From the fall of 1915 on to the summer of 1919 Gyorgy Lukacs, Karoly Polanyi, Karoly Mannheim, Lajos Fulep, Bela Balazs, Arnold Hauser, key figures in modern social sciences and humanities, regularly met Sunday afternoons and were also contributing to the activities of a Budapest based Free School of Social Sciences. In this latter institution Bela Bartok and Zoltan Kodaly were also among the lecturers. The Budapest legacy is thus present in influential trends of twentieth century philosophy, sociology, art history and music. Differing as the later careers of these personalities were, during their Budapest youth they shared some theoretical attitudes: they refused a mechanic natural scientific, positivist world view and devoted much attention to the relationship between aesthetics and ethics and to the moral aspects of politics. After a short survey of the careers and the lasting achievements of the leading figures of the so called Budapest Sunday Circle, one issue will be examined in more detail: to what an extent can modern trends of the radical criticism of capitalism traced back to the Budapest School of philosophers and social scientists?



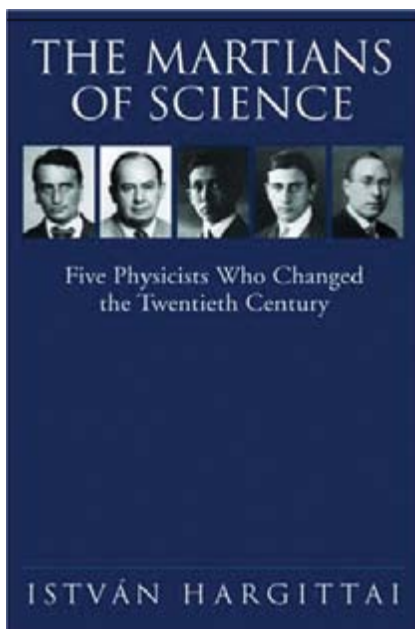
**István Hargittai**

demia Europaea (London). He has received the Széchenyi State Prize of Hungary and has honorary doctorates from Moscow State University, the University of North Carolina, and the Russian Academy of Sciences. His books have appeared in English, Hungarian, German, Russian, Italian, Swedish, Chinese, and Japanese. His recent books include the six-volume Candid Science series of interviews with famous scientists; *The Road to Stockholm*; *The Martians of Science*; and *The DNA Doctor*; *Visual Symmetry* (with M. Hargittai); *Symmetry through the Eyes of a Chemist* (with M. Hargittai); and *Judging Edward Teller: A Closer Look at One of the Most Influential Scientists of the Twentieth Century*.

István Hargittai is a physical chemist, research professor at the Budapest University of Technology and Economics. He has been involved with molecular structure research by electron diffraction and other techniques. He is a member of the Hungarian Academy of Sciences, the Norwegian Academy of Science and Letters, and the Aca-

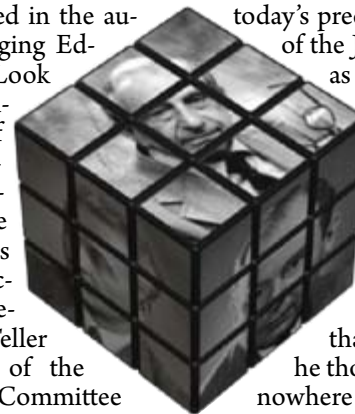


Teller and Hargittai 1996

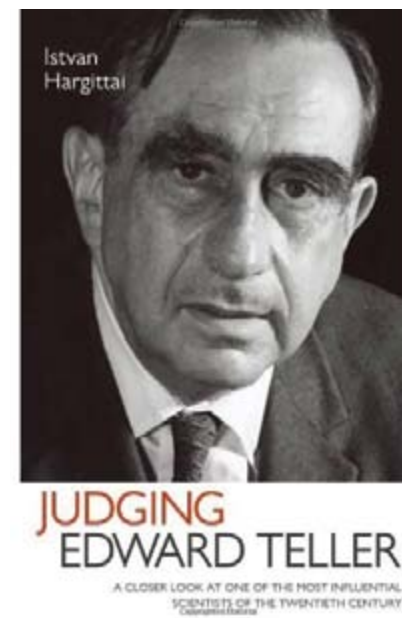


## Edward Teller and Nuclear Safety

This non-technical talk will be about the Hungarian-American physicist Edward Teller, a most controversial figure who is portrayed in the author's new book, *Judging Edward Teller: A Closer Look at One of the Most Influential Scientists of the Twentieth Century* (Prometheus, Amherst, NY, 2010). The discussion will focus on Edward Teller's activities for nuclear safety. In the late 1940s Teller served as chairman of the Reactor Safeguard Committee (RSC), which was a subcommittee of the U.S. Atomic Energy Commission. The regulations and recommenda-



tions that the RSC worked out under Teller's leadership have withstood the test of time. They appear as timely in today's precarious situation in view of the Japanese nuclear disaster as they were six decades ago. Teller remained a zealous advocate of maximum safety for nuclear reactors to the end of his life. In 2004, it was stated: "He was ahead of his time, and perhaps ours, in seeing that nuclear power, which he thought essential, would go nowhere if its safety and security were in question." [Brown & May, *Physics Today*, Aug 2004, 51-53, actual quote p. 53.]







**Ábel Lajtha**

Abel Lajtha was born and educated in Budapest, Hungary. In 1945 he began his scientific career at the Institute of Biochemistry in Budapest under Szent-Györgyi, continued working for Szent-Györgyi at the Zoological Institute in Naples, then in London as a fellow of the Royal Institute of Great Britain. He rejoined Szent-Györgyi's Institute for Muscle Research at the Marine Biological Laboratory in Woods Hole, Massachusetts from 1948-1951. He began his studies on the nervous system at Columbia University on the blood-brain barrier, and on brain protein metabolic studies. In 1963, he became the Director of the N.Y.S. Research Institute for Neurochemistry, his Institute later merged with the N.S. Kline Institute for Psychiatric Research, an Institute of the Office of Mental Health of the State of New York affiliated with New York University, where he is now Director of the Center for Neurochemistry, and is Professor of Experimental Psy-

chiatry at NYU School of Medicine. He received an honorary M.D. degree from the University of Padua; he has been President of the International Society for Neurochemistry, and of the American Society for Neurochemistry; he was elected member of the Slovenian Academy of Sciences, the Hungarian Academy of Sciences, the Indian Academy of Neuroscience, the Armenian National Academy of Sciences, and as an honorary member of institutes and societies in many countries. He has published over 600 journal articles including 100 reviews or chapters. He is Editor-in-Chief of the Handbook of Neurochemistry, of the Journal; Neurochemical Research, now in its 36<sup>th</sup> year, has been an editor of 16 books, and about 20 journals. He has served on various federal committees including on study sections for the Veterans Administration, the National Science Foundation, and the National Institutes of Health. He chaired and organized numerous meeting and symposia including in Hungary. He is the President of the Research Foundation for Mental Hygiene, serves as the chair of the Institutional Review Board of the Nathan Kline Institute. His main interest remains brain proteins, membranes, and receptors, their functions and their changes with drugs, pathology, cognitive and reward mechanisms, the dynamic turnover of brain proteins, transport systems of the blood-brain barrier, changes with aging in brain protein catabolism, and interacting neuroreceptors in cognitive and reward processes. He collaborated with several scientists in Europe and Asia. His laboratory had many young scientists visiting and being trained (among them 30-40 were from Hungary).

## Albert Szent-Györgyi, M.D., Ph.D.

Albert Szent-Györgyi, in time was the second of the ten Hungarian Nobel prize winners. He was one of the great scientists and humanists of the 20th century; an original and concerned individual of significant contributions to biology, medicine and humanism and great talent! As such, he was the subject of several articles and books and his curriculum is described at a number of sites. I do not wish to summarize these or compete with them; instead



I would like to describe admittedly from a highly personal point of view what it meant for me to have him as my teacher, mentor, and friend; how he influenced my life and no doubt the lives of many others in research, in thinking and in behaving. I want to describe the scientist and the teacher as I saw it. He was an individual of unique talent and character, born perhaps and somewhat lost in the difficult conditions he faced and the disturbing developments of the 20th

century, like perhaps Bartok among the Hungarians. I hope to describe what is admittedly, a rough superficial sketch of a man, a Hungarian, a scientist, a teacher, a humanist of significant present and future influence; from whom we can learn a great deal even in the 21st century, and of whom the Hungarians and others can be proud of.

Did he have an easy life? No. Because of this, could he contribute as much to humanity as he could? No. But is he a major figure in science and around science? Yes. Did he mean a great deal, did he greatly help his students and co-workers? Yes. Was his life interesting, successful, and happy? Yes. I knew him well during the years of 1940-1950 and would see him from time to time after that till almost his death at the age of 93, and as his admirer, my accounts of what I saw and learned may be biased in his favor, but he deserves that.

Abel Lajtha





**Albert-László Barabási**

#### **Education / Academic Career**

University of Bucharest, major in physics and engineering, 1986-1989  
M.Sc., 1991, Eotvos Lorand University, Budapest, in physics;  
Ph.D., 1994,  
Boston University, in physics;

#### **Biography / Interests**

Albert-László Barabási is a Distinguished University Professor at Northeastern University, where he directs the Center for Complex Network Research, and holds appointments in the Departments of Physics, Computer Science and Biology, as well as in the Department of Medicine, Harvard Medical School and Brigham and Women Hospital, and is a member of the Center for Cancer Systems Biology at Dana Farber Cancer Institute. A Hungarian born native of Transylvania, Romania, he received his Masters in Theoretical Physics at the Eötvös University in Budapest,

Hungary and was awarded a Ph.D. three years later at Boston University. After a year at the IBM T.J. Watson Research Center, he joined Notre Dame as an Assistant Professor, and in 2001 was promoted to the Professor and the Emil T. Hofman Chair. Barabási recently released on April 29th his newest book "Bursts: The Hidden Pattern Behind Everything We Do" (Dutton, 2010) available in five languages. He has also authored "Linked: The New Science of Networks" (Perseus, 2002), currently available in eleven languages, is co-author of "Fractal Concepts in Surface Growth" (Cambridge, 1995), and the co-editor of "The Structure and Dynamics of Networks" (Princeton, 2005). His work led to the discovery of scale-free networks in 1999, and proposed the Barabasi-Albert model to explain their widespread emergence in natural, technological and social systems, from the cellular telephone to the WWW or online communities. His work on complex networks have been widely featured in the media, including the cover of Nature, Science News and many other journals, and written about in Science, Science News, New York Times, USA Today, Washington Post, American Scientist, Discover, Business Week, Die Zeit, El Pais, Le Monde, London's Daily Telegraph, National Geographic, The Chronicle of Higher Education, New Scientist, and La Republica, among others. He has been interviewed by BBC Radio, National Public Radio, CBS and ABC News, CNN, NBC, and many other media outlets.

#### **Awards**

Barabási is a Fellow of the American Physical Society. In 2005 he was awarded the FEBS Anniversary Prize for Systems Biology and in 2006 the John von Neumann Medal by the

## **Human Dynamics: Can We Predict Human Behavior?**

John von Neumann Computer Society from Hungary, for outstanding achievements in computer-related science and technology. In 2004 he was elected into the Hungarian Academy of Sciences and in 2007 into the Academia Europaea. Then in 2008 he was an award recipient for the C&C Prize from the NEC C&C Foundation. Recently in 2009 APS voted him Outstanding Referee and the National Academies of Sciences award him the 2009 Cozzarelli Prize in Washington, DC.

#### **Selected Publications**

A.-L. Barabási and H. E. Stanley, Fractal Concepts in Surface Growth (Cambridge University Press, Cambridge, 1995).

A.-L. Barabási, M. Krishnamurthy, F. Liu, and T. Pearsall (eds.), Epitaxial Growth – Principles and Applications (Materials Research Society, Vol. 570, Warrendale, PA, 1999).

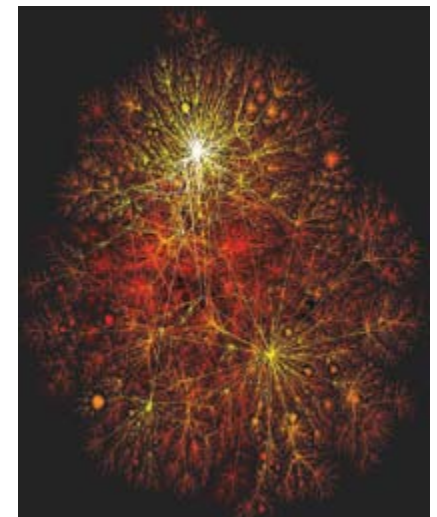
J. Mirecki Millunchick, A.-L. Barabási, N. A. Modine, and E. D. Jones (eds.), Morphological and Com-positional Evolution of Heteroepitaxial Semiconductor Thin Films (Materials Research Society, Vol. 618, Warrendale, PA, 2000).

A.-L. Barabási, Linked: The New Science of Networks (Perseus, Cambridge, MA, 2002) [available in Check, Croatian, Chinese, Finnish, Hebrew, Hungarian, Italian, Japanese, Korean, Turkish].

M. Newman, D. Watts and A.-L. Barabási, The Structure and Dynamics of Networks (Princeton University Press, 2006).

Albert-László Barabási Center of Complex Networks Research, Northeastern University and Department of Medicine, Harvard University.

A fundamental goal of science is to produce tools and methods with predictive power. While are comfortable with predicting the trajectory of a planet or the behavior of a gene, predicting human behavior is often seen as more science fiction than science. Indeed, can human activity patterns be predicted? This question is not only of academic interest: a range of applications, from the spread of human and electronic viruses to city planning, depend on our ability to understand and predict human activity patterns. Using human mobility as a proxy of human dynamics, I will ask the simple yet loaded question: can we predict where will you be tomorrow? The answer is yes, raising fundamental questions at the boundary of human behavior, predictability and free will.







**György Buzsáki**

György Buzsáki graduated as an MD from the University of Pécs, Hungary in 1974 and received his Ph.D. in Neuroscience from the Academy of Sciences, Budapest in 1984. Currently, he is a Board of Governors Professor of Neuroscience at Rutgers University, Newark, NJ.

Over the past 35 years György Buzsáki has led the way in analyzing how neuronal circuits code, transfer and store information, especially how different brain oscillations serve such mechanisms. He pioneered the experimental exploration of how coordinated, rhythmic neuronal activity serves physiological functions in the cerebral cortex, and in particular, how information is exchanged between the hippocampus and neocortex. His most influential work, the two-stage model of memory trace consolidation, demonstrates how the neocortex-mediated information during learning transiently modifies hippocampal networks, followed by reactivation and consolidation of these memory

traces during sleep. His recent book “Rhythms of the Brain” is masterful account of how cortical cells and circuits give rise to higher cognitive functions. Dr. Buzsáki is among the top 150 most-cited neuroscientists, a Fellow of the American Association for the Advancement of Science, foreign member of the Hungarian Academy of Sciences, and sits on the editorial boards of several leading journals, including Science and Neuron.

#### Awards and Named Lectures

The Brain Prize (2011), Honors Lecture. New York University (2011), Keynote Speaker, European College of Neuropsychopharmacology (2010), The Talairach Lecture, Organization of Human Brain Mapping Society (2010), Grass Traveling Scientist (1992; 2009), The Hans-Lucas Teuber Lecture, MIT (2009), The David Smith Lecture, Oxford University (2009), H. Neufeld Memorial Award, Israel (2008), Opening Plenary Lecture, Federation of European Neuroscience Societies (2006), Elected Associate, Neuroscience Research Program (2006), Elected Fellow, AAAS (2004), Krieg Cortical Discoverer Award (2001) Distinguished Lecturer, Collège de France (1998, 2008), The first Pierre Gloor Award (1997), The Moruzzi Lecture. European Neuroscience Association (1996).



## Neural syntax and cognition

The traditional approach in understanding brain function is to give simple then more complex stimuli to the brain and see what happens. I call this the ‘empiricist’ approach because it assumes that the brain faithfully represents the world out there. This method is a bit like learning words of a foreign language, just collecting correspondences. The initial progress is fast; one can get by in Hungary with just 100 words of vocabulary. However, when it comes to truly understanding a language such as hieroglyphs or the language of the brain (where we do not even know what is to be understood), we need to know about the grammar, that is how information is segmented

or packaged into words and sentences. The goal of my lab is to reveal neuronal syntax or brain grammar. As in language and music, the tempo, punctuation etc., are essential, the same applies to the brain. In neuronal networks, especially in those structures that serve cognitive functions, the packaging of information and segmentation is supported by the numerous rhythms the brain generates. These rhythms, again like in music, provide temporal correlations at multiple time scales, which can be mathematically defined. In these rhythms, inhibitory processes play an essential role. I will demonstrate how this process may work in storing and recalling memories.



Electrical field generated by a single neuron.

**Legend:** Genetic engineering of the mouse brain allows investigators to address novel hypotheses. In this cute mouse, electrical junctions between neurons were knocked out genetically by inactivating the responsible gap junction protein. As a result, both hippocampal electrical patterns, especially gamma frequency oscillations (40–100 Hz), and memory were impaired. (Buzsaki et al., Neuroscience 2003). (Art: G. Buzsaki; electrical traces superimposed on microphotograph of silver stained section of the hippocampus and gene structure).



**László Záborszky**

Laszlo Zaborszky, is Professor of Neuroscience at Rutgers-Newark, NJ. He received his MD at Semmelweis University with Sub Auspiciis Rei Publicae Popularis (1970), and his PhD (1981) and Doctor of Science (DSc, 2000) from the Hungarian Academy of Sciences. He joined the faculty of the Department of Anatomy, Semmelweis University headed by J. Szentagothai in 1969 where he worked until 1981. He was also appointed Assistant Professor in the Department of Anatomy at the University of Wurzburg, Germany (1973-1974). In 1981 he was invited to join the laboratory of Professor Heimer at the University of Virginia, Charlottesville, where he was appointed Associate Professor of Neurology, with a joint appointment in the Department of Neurosurgery in 1986. Later, he served there as Director of the Laboratory of Cellular and Molecular Neuroanatomy (1992). He moved to the Center for Molecular

and Behavioral Neuroscience at Rutgers University in 1993, where he was promoted to Professor I with tenure in 2004. He spent short sabbaticals in the Max Planck Institute for Biophysical Chemistry in Göttingen, Germany (1976), in the Montreal General Hospital, Canada (1986), at the National Institute for Physiological Sciences, Okazaki, Japan (2000), in the Vogt Institute for Brain Research in Duesseldorf (2000) and in the Institute of Neuroscience and Biophysics, Research Center Juelich, Germany (2005). He published 113 scientific papers, including book chapters and a monograph on hypothalamic connections (Springer, 1982). His anatomical studies inspired research in many laboratories as reflected in the high number of citations (over 6200) that his papers received. He is co-editor of *Neuroanatomical Tract-Tracing Methods 2* (Plenum, 1989) and lead editor of *Neuroanatomical Tract-Tracing 3: Molecules, Neurons, Systems* (Springer, 2006). He held more than 75 invited lectures at various international conferences and institutions. He has served on various international and federal scientific advisory boards and chaired and organized numerous symposia in the United States and in Hungary. He advised many (46) Undergraduate, Graduate Students and Postdoctoral Fellows He is recipient of numerous private and federal research grants totaling over 9.8 million dollars. He is Founding Editor-in-Chief, *Brain Structure and Function* ([www.springer.com/429](http://www.springer.com/429)). He was elected foreign member of the Hungarian Academy of Sciences (2007) and was awarded Dr. habil. of Semmelweis University (2004), Hungary. He is Vice-President of the recently formed New York Hungarian Scientific Society. URL: <http://zlab.rutgers.edu/>

## Basal Forebrain: Anatomy to Function

The basal forebrain (BF) comprises functionally and neurochemically heterogeneous cell populations along the medial and ventral surfaces of the forebrain that are implicated in various functions, including cortical activation, sensory processing, memory and attention but the functional details are not well understood due to the anatomical complexity of this region. Cholinergic cells, which are widely distributed in the BF, provide the majority of acetylcholine found in the cerebral cortex. Patients with Alzheimer's disease (AD) have a significant decrease of acetylcholine in the cortex and show pathological changes in cholinergic basal forebrain neurons. Although much controversy remains as to the primary target of this disease, our recent work by mapping the cholinergic BF compartments to standardized MRI space provided the necessary foundation to investigate how structural changes in the BF correlate to cognitive symptoms during ageing and AD. We found that patients with mild cognitive impairment (MCI) – prodromal phase of AD- similar to advanced AD, exhibit significant volume

reduction in the nucleus basalis that is correlated with memory deficits. By applying various computational anatomical methods, we have shown that cholinergic and non-cholinergic neurons in rodents show small-scale associations in the form of regionally specific cell clusters in the entire cholinergic BF space. The connective pattern of these cell clusters suggest that they may serve an associational function that involves transmitting information from specific subcortical locations to a small subset of cortical areas that most likely are interconnected. This mechanism may support interactions between cortical and subcortical attentional networks. Parallel to network reconstructions, single cell analysis in vivo and in vitro began to shed light on the elementary circuit of this region. These results will lead to more realistic animal models for addressing function in behavioral studies. Concomitantly, it will facilitate the understanding of the aberrant processing in basalo-cortical networks and may help the development of new treatment strategies to ameliorate the cognitive symptoms in AD.







**Péter Lévai**

Péter Lévai is a theoretical high energy nuclear physicist at the KFKI Research Institute for Particle and Nuclear Physics (KFKI RMKI) in Budapest.

He graduated from the Földes Ferenc Gimnázium in Miskolc in 1980. He has received his Master degree on physics from the Eötvös Lóránd University (ELTE) and started his research activity at KFKI RMKI in 1986. He was working on high energy nuclear physics, especially on strange particle production in ultrarelativistic heavy ion collisions – the first high energy heavy ion collisions to produce a new exotic state of the matter, the quark-gluon plasma, have been started at the AGS accelerators in Brookhaven National Laboratory (BNL) in Long Island and at the SPS accelerators in CERN at the Switzerland-France border. He has defended his PhD at ELTE in 1989 and moved to the USA. He became research associate at the Physics Department of the Duke University (Durham, NC),

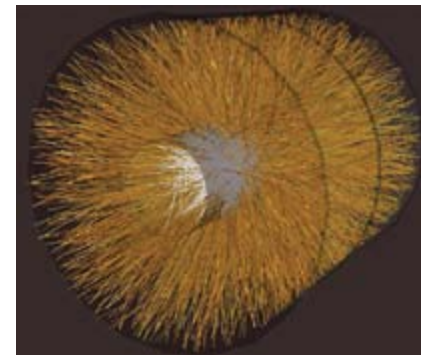
later on at the Cyclotron Laboratory of the Texas A&M University (College Station, TX). His interest focused on the hydrodynamical description of heavy ion collisions. In 1992 he moved back to Hungary, where he became senior researcher. He kept an active connection with his colleagues at USA, spending many months at Duke and Texas A&M Universities, and at Lawrence Berkeley and Los Alamos National Laboratories. He started his collaboration with Prof. Gyulassy at Columbia in 1998 on studying quantum chromodynamics, jet energy loss and other properties of strong interactions. They developed the method of jet tomography to determine the central color particle density in heavy ion collisions. During last years this method has been widely used in data analysis concerning data from the RHIC accelerators, which started to work in 2000 at BNL. He and his students visited frequently Columbia University and accomplished a very successful research program with Prof. Gyulassy. They have an active collaboration focusing on heavy ion collisions at CERN Large Hadron Collider .

In 2002 he became the head of the Theoretical Physics Department at KFKI RMKI, and now he is the deputy director of the institute. In 2010 he became corresponding member of the Hungarian Academy of Sciences. He has published more than 150 theoretical papers and contributions, edited 7 books and conference proceedings. He participates in the CERN SPS NA49 and CERN LHC ALICE Collaborations, from 2005 he is the teamleader of the Hungarian ALICE group. He is privatdozent at the ELTE, teaching from 1989. He has numerous BSc., MSc. and PhD. students, studying in heavy ion physics.

## Large Hadron Collider tests the primordial matter of the Universe

In the Fall of 2009 the Large Hadron Collider (LHC) started his scientific programme and the first proton-proton collisions have been performed at 900 GeV, later on at the world record energy of 2.36 TeV. These collisions are warming up the accelerators and its detectors for the full power of 14 TeV. Particle physicists are eager to see the indications of Higgs-particle and the very rarely produced supersymmetric particles, which may solve the mystery of the dark matter and dark energy. In every year 10 months are devoted for pp collisions, and 1 month is focusing on heavy ion collisions, especially on PbPb collisions. The main aim of these lead-lead collisions is to create such a high energy density, which may exist 13.7 billion years ago, just a few microseconds after the Big Bang. This early phase of the Universe has been filled by quark gluon plasma and in the LHC we have the chance to reconstruct this extreme matter. The first successful Pb-Pb collisions have been performed in November 2010. Now the first data

are available and they already display unforeseen behaviors and rises new questions and problems.



In my talk I plan to summarize the main motivation of the LHC, the latest results in PbPb collisions and the expected activities in the next two years. The Hungarian ALICE group consists of 25 senior researchers and students (they are the majority) and focus on the quark gluon plasma research. The Hungarian CMS group consists of 40 people, focusing on Higgs research and search of supersymmetric particles.





**Szabolcs Márka**

Associate Professor of Physics Columbia Astrophysics Laboratory Columbia University in the City of New York, (Diploma -1993 Kossuth Lajos University, PhD -1999 Vanderbilt University) is an experimental astrophysicist and associate professor of physics at Columbia University in the City of New York. Previously Marka worked at Cornell University with the CLEO collaboration and at California Institute of Technology with the LIGO Scientific

**Collaboration.** His present research is twofold, contributing both to fundamental science and global health. His biophysics work is centered on investigating physical methods to contribute to the eradication of Malaria, a disease that kills a child in every 45 seconds in Africa and can decrease a country's gross domestic product by as much as 1.3 percent.

His astrophysics interest is focused on the effort to directly detect gravitational waves of cosmic origin, which will allow us to study elusive cosmic processes and objects unreachable through conventional methods based on electromagnetic observations.

He took leading roles in designing, building, observing with, and analyzing data from the worldwide interferometric gravitational wave detector network to extract information on the nature of the Universe. His present astrophysics goal is to exploit synergistic astrophysics relying on data from a comprehensive range of observations, such as gravitational waves, gamma-rays, X-rays, radio, optical, and/or neutrinos.

**Recent Awards/Honors:**

Grand Challenges Explorations Award, The Bill and Melinda Gates Foundation, 2010; CAREER Award, National Science Foundation, 2009-2014; Kavli Frontiers Fellow, Selected for "The 9th Annual Year in Ideas", New York Times Magazine, 2009; Featured in Economist Magazine; Among others, reviewer for BSF, NASA, IUSSTF

**Selected Recent Publications:**

B. Abbott et al. [LIGO Collaboration], "Search for Gravitational Wave Bursts from Soft Gamma Repeaters", Editor's Choice, Physical Review Letters 101, 211102, 2008

B. Abbott et al. [LIGO Collaboration], "Implications for the Origin of GRB 070201 from LIGO Observations", ApJ, 681, 1419, 2008

B. Kocsis, M.E. Gaspar, S. Marka, "Detection Rate Estimates of Gravity-waves Emitted During Parabolic Encounters of Stellar Black Holes in Globular Clusters", Astrophys.J. 648:411-429, 2006

S. Ballmer, S. Marka, and P. Shawhan, "Feasibility of measuring the Shapiro time delay over meter-scale distances", Classical and Quantum Gravity, 27, 185018, 2010.

E. Chassande-Mottin, M. Hendry, P. J. Sutton, and S. Marka, "Multimessenger astronomy with the Einstein Telescope", General Relativity and Gravitation, pg 109, 2010.

## The Search for Gravitational Waves On the Earth

Gravitational waves, ripples in the curvature of spacetime, carry information about the nature of gravity and fascinating astronomical phenomena never before observed by humanity, such as colliding black holes or consumed neutron stars. I will discuss some of the highlights of the history,

technology, and aspirations of the scientific field that enables humanity to sense distances that are tens of thousands of times smaller than the size of an atomic nucleus. I will also provide a personal outlook on our progress toward the pioneering field of gravitational-wave astronomy.







**Zoltán Haiman**

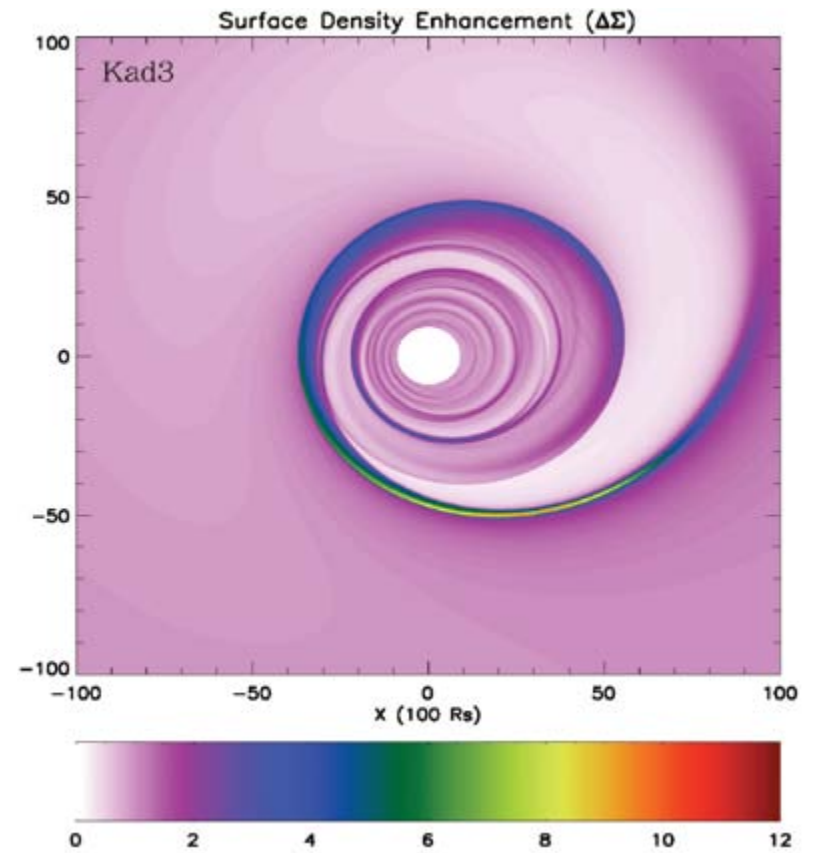
Zoltán Haiman is a theoretical astrophysicist and cosmologist at Columbia University. He graduated from Fazekas Mihály Gimnázium in Budapest in 1989. He received Bachelor of Science degrees from the Massachusetts Institute of Technology (MIT) in 1993 in Physics and in Electrical Engineering. While at MIT, he was planning to become an architect, but he became fascinated by the many open questions in astrophysics and cosmology. He spent a year at Cambridge University in the U.K. as an Isaac Newton fellow at the Institute of Astronomy, and went on to receive his PhD in Astronomy from Harvard University in 1998. In his PhD thesis, he pioneered the basic theoretical understanding of how the first generation stars formed in the universe, a subject that has since developed into one of the main research areas in cosmology. He was a postdoctoral researcher in the theoretical astrophysics group at the Fermi National Accelerator Labo-

ratory (“Fermilab”) near Chicago, and later at Princeton University, holding a coveted Hubble Fellowship. He joined the faculty in the Astronomy Department at Columbia University in 2003, where he is now an Associate Professor, having received tenure in 2008. He has continued working on a broad range of theoretical problems in astrophysics and cosmology, including the assembly of the first galaxies and the end of the cosmic dark age; the nature of dark matter, dark energy, and the acceleration of the universe; and, most recently, understanding the process of mergers between supermassive black holes. He was named as one of the top 10 young scientists in the U.S. by Popular Science magazine in 2002, and was a finalist for the New York City Mayor’s Award for Excellence in 2004. He was a winner of the 2010 Blavatnik Award for Young Scientists from the New York Academy of Sciences for highly innovative, impactful, and interdisciplinary accomplishments in the life sciences, physical sciences, mathematics, and engineering. As a professor at Columbia, he has supervised the doctoral thesis of eight PhD students, who went on to prestigious postdoctoral fellowships at Harvard, Princeton, Berkeley, ETH Zürich, the Max Planck Institute for Astrophysics in München, the University Santa Barbara, and the University of Michigan. He is a frequent visitor to Eötvös University in Budapest, where he has enjoyed working with several students. Together with his students and collaborators, he has co-authored more than 125 peer-reviewed scientific papers. Besides his regular faculty appointment at Columbia, he is currently the co-director, with string theorist Brian Greene, of the Institute for Strings, Cosmology, and Particle Physics (ISCAP) at Columbia University, and also of the new Eötvös International Research School in Astrophysics in Budapest.

## The Life and Times of Black Holes Throughout Cosmic Time

Black holes are a fascinating prediction of Einstein’s general relativity theory. Over the last 10 years or so, astronomers have accumulated convincing evidence that black holes not only actually exist, but are ubiquitous in nature. They are found to reside at the center of every galaxy, close enough to study in detail. Extremely large black holes, several billion times heavier than our own Sun, are also known to have formed already within a mere 700 million years after the Big Bang. The rapid assembly of such large black holes is

currently an unsolved puzzle in astrophysics. I will describe one possible solution, which posits that the first stars in the universe were very massive, and left behind “stellar-mass” seed black holes at the end of their lives. These small black holes can later gain weight by the gas that spirals into them, and can build up bigger black holes by merging frequently. During such mergers, the black hole pair emits copious amounts of gravitational waves, which can be detected by future space-based detectors, to test this theory.



Dear Distinguished Guests  
of the Hungarian Scientific Conference  
and Friends of Hungary,



Today we are celebrating the Hungarian scientific community, its achievements to date and the promises the future holds.

When I recommended the creation of the New York Hungarian Scientific Society (previously called Hungarian Scientific Club in New York) in August 2010 I could not have imagined that this initiative would be so well-received in New York and beyond. As you will all know – having a good idea is just the start. To realize its full potential takes commitment, enthusiasm and team work. Today's event would not have been possible without the invaluable support of the Hungarian scientists living in the New York area in general, and of the Chairman of the New York Hungarian Scientific Society, Professor János Bergou and of Vice Chairman Professor László Záborszky in particular. They both worked tirelessly to progress the original proposal for co-operation to its fruition. Their creative and pragmatic approach was instrumental in ensuring that the New York Hungarian Scientific Society was able to enjoy some significant achievements and a promising future within less than half a year of its creation.

Another key figure in this process was Ambassador Károly Dán, Consul General of Hungary, who gave his patronage to the society from its very inception and generously donated his own and his staff's time.

The lifeblood of any society and the key to its success are its members, however. And no society could wish for a more impressive and supportive membership. I need to say little about the former – I doubt there is another room in New York at this moment in which there is a gathering with such a high collective IQ, such an impressive list of achievements and so much intellectual curiosity. It is, however, your enthusiasm and support which has been particularly invaluable and touching.

The enthusiasm with which the creation of this society has been greeted and taken forward proves that it meets a real need: The need for a forum for effective networking, for the exchange of ideas and for communicating the excitement and importance of scientific endeavor not just to those who already live these values every day but also to the bright stars of tomorrow.

I firmly believe that the true might of a country is not measured in its military power or its natural reserves but in the strength of its spirit. Hungary is small and insignificant on the first two counts, but punches way above its weight in the latter. It is due to societies and initiatives such as ours that Hungarians will continue to do so. With this in mind let us all thank all those who made today possible and let us use the ideas and sparks of insight we generate today to further strengthen scientific endeavor here in New York, in the US and in Hungary.

Zsófia Trombitás, Consul  
Director, NYHSS



Design, Front Cover Graphic and  
Photos: **Zoltán Tardos**

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