



The Croatian Academy of Engineering (HATZ) is a Member of the International Council of Academies of Engineering and Technological Sciences (CAETS), Inc., Washington D.C., U.S.A. since 2000, and, starting with 2005, an Associated Member of the European Council for Applied Sciences and Engineering (Euro-CASE), Paris, France, EU

## Nikola Tesla – The Life and Work

It is hard to imagine the contemporary world without Tesla and his patents. We encounter Tesla in our home, at our working place, in our social life or in the moments of repose and relaxation. The degree of integration of his patents into our life is considered a civilizational achievement and a common good.

From this point of view, Tesla is a common value and everyone has the equal right to celebrate his life and work. Of course, this happens. In formal and informal sense, Tesla is a man who has, more than anyone else, contributed to the present technological level of realization of modern economy and modern way of life.

His supranational work, which is also a work for a step forward in the development of civilization, also brings forth an urge to determine our relation to all those that wish to celebrate Tesla on any basis. The Republic of Croatia, on the territory of which Nikola Tesla was born 150 years ago in a family of Serbian nationality, is rejoicing to every contribution that reminds us of his work, and is supporting all such ideas and projects that remind the citizens of the entire world to this great inventor and visionary.

The application of Tesla's patents started very soon in Croatia. With the application of these patents, new energy and quality of life entered the Croatian homes and companies. Likewise, the industry developed as well as educational institutions, while Tesla's patents and their application have become a life and professional preoccupation of many people.

What does the celebration of 150th anniversary of Nikola Tesla's birth mean for the Croatian Academy of Engineering? For an institution founded in the 14th decade of Tesla's anniversary, the experiences of "living" his work and relation to him means the following:

- No one is entitled to a privilege of talent, and thus Tesla's example of a genius born in such a small, poor and undeveloped environment, points that the Academy, as a part of its activity, should support the talent and open door to new "Teslas",
- The universal values and contribution to the civilization require permanent affirmation and discarding any type of discrimination, with valutatively equal acceptance of everyone who wishes to share with us the joy for the results as well as contribution of every exceptional individual,
- Tesla's legacy as well as the contribution of many generations of engineers should become a permanent encouragement to the development of this profession and the economy,
- His opus should suspend the limitations of the human life, because Tesla has left much of his work unfinished, which is a challenge to the forthcoming generations as well as for all of us.

In Tesla's life and work the Croatian Academy of Engineering may find the idea inspiring its activities in the future years. It should affirm the engineering sciences, encourage the talents, open itself towards knowledge and its application and continue to build cooperation both in Europe and worldwide.

By celebration of the 150th anniversary of Nikola Tesla's birth, we wish to bring Tesla back into our everyday life in a way he deserves. To be a citizen of his homeland is a great obligation for everyone, but also a great challenge for all of us to integrate strongly through knowledge into the global knowledge and economy.

Goran Granić

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Colloquium of the Croatian Academy of Engineering

# “Knowledge-Based Croatia – A Possible Contribution of the Croatian Scientists”

Zagreb, February 28, 2006.

09:00

*Opening of the Colloquium*

**Chairmen:**

Assoc. Prof. Stjepan Car, Ph. D., Chairman of the HATZ Committee for Co-operation with the Economy and Promotion and Assist. Prof. Goran Granić, Ph. D., Chairman of the HATZ Committee for Regional Co-operation and Development

**Colloquium Book of Abstracts Foreword by Assist. Prof. Goran Granić, Ph. D. and Assoc. Prof. Stjepan Car, Ph. D., Chairmen**

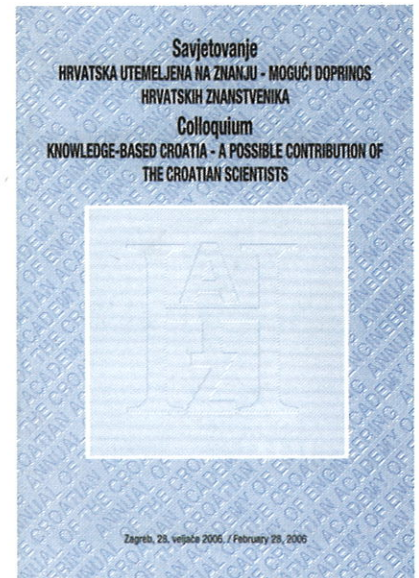
Dear participants,

Today, “Croatia based on knowledge” is a generally accepted commitment. Measurable indicators confirm that this is a project for the future and not the present state of condition. Knowledge is a long-term realistic opportunity for the Republic of Croatia. The best measure of knowledge are exports of goods and services. Exports provide a synergistic opportunity to express the capability of a society, an economy and a scientific community to create a product and a service in a manner that it has competitive advantage in relation to similar products and services. Countries similar to Croatia realise significantly larger exports than the Republic of Croatia which indicates a large potential for its growth.

What is needed to change the situation Croatia is in? This conference represents but a start, and it is our foremost desire to encourage discussion, especially among businessmen. Are our scientific goals adequately chosen, do we adequately valorise scientific results, how can we realistically utilise our scientific potential for the purpose of increasing the economic development of the Republic of Croatia and can technical sciences and biotechnology instigate a sophisticated and eventful cooperation between science and the economy?

The papers presented here will undoubtedly provide an answer to some of the posed questions. A comprehensive social interest is to realise a synergic effect between science and the economy with the scope of encouraging the development of Croatia based on knowledge. The capacity to change the present state of affairs is equal to the capability to realise set goals.

Goran Granić, Stjepan Car



09:10-09:30

Katarina Matijević, Dipl. Eng. (Podravka, Inc., Koprivnica, Croatia)

**Croatia based on knowledge – The role of the highly educated experts in success of Podravka, Inc.**

09:30-09:50

Branka Magdalenić, M. Sc. and Tamara Drk Vojnović, Dipl. Eng. (Vindija, Inc., Varaždin, Croatia)

**Business Group “Vindija” – Application of science, quality, innovation, safe food**

09:50-10:10

Assoc. Prof. Stjepan Car, Ph. D. (Končar – Institute of Electrical Engineering, Inc., Zagreb, Croatia)

**Končar toward the economy of knowledge**

10:10-10:30

Prof. Krešimir Ćosić, Ph. D.

**Knowledge – Based Security**

10:30-10:50

Klaudio Tominović, Ph. D. (Uljanik Shipyard, Inc., Pula, Croatia)

**Knowledge-based economy – An example of the engineering system with high capital value**

10:50-11:10

Prof. Niko Majdandžić, Ph. D., Prof. Ivan Budić, Ph. D., Prof. Ivica Samardžić, Ph. D. and Josip Bucić, M. Sc. (Đuro Đaković Holding, Ltd., Slavonski Brod, Croatia)

**Technological development of the metal-processing production systems in Slavonia and Baranja – a precondition for affirmation and positioning at the EU market**

11:10-11:30

*Break*

11:30-11:50

Miroslav Končar, M. Sc. (Ericsson Nikola Tesla, Inc., Zagreb, Croatia)

**Implementing HL7v3 Standard in Croatian Primary Care Domain**

11:50-12:10	Goran Puž, (Hrvatske autoceste, Ltd., Zagreb, Croatia) <b>Scientific advancements in the highway construction</b>	13:10-13:30	Željko Goja, M. Sc. (HSTEC, Inc. – High Speed Technique, Zadar, Croatia) <b>Firm development on the basis of innovative products and new technology</b>
12:10-12:30	Vinko Barišić, (JADRAN, Inc., Zagreb, Croatia) <b>The role of knowledge and highly educated personnel in the relocation of the hosiery factory JADRAN</b>	13:30-13:50	Marijan Bušić, Prof. (CROATA, Zagreb, Croatia) <b>CROATA and the science</b>
12:30-12:50	Ivan Gabrić, (Combis, Ltd. and VR Vis Institute, Croatia) <b>ComVis – Visualization of a Market Product from a Scientific Paper</b>	13:50-14:10	Zdravka Knežević, M. Sc. (Pliva – Research and Development, Ltd., Zagreb, Croatia) <b>Generic Product Development – Pillar of Generic Company Strategy</b>
12:50-13:10	Prof. Ante Pulić, Ph. D. (Intellectual Capital Center, Ltd., Zagreb, Croatia) <b>Why is Croatia not developing (faster)?</b>	14:10-14:20	<i>Final reflections</i> <i>Closing of the Colloquium</i>

## Election of the Secretary-General and the Administrative Secretary-General of the Croatian Academy of Engineering

At the 21<sup>st</sup> Annual Assembly of HATZ, held on February 28, 2006 in Zagreb, Secretary-General was elected and Administrative Secretary-General was appointed.

**Assist. Prof. Goran Granić, Ph. D., was elected Secretary-General of HATZ**

**Granić (Ivan) Goran, Baška Voda, April 18, 1950**

**Graduated:** Faculty of Electrical Engineering, University of Zagreb (1972), B.Sc. Electrical Engineering, division energetic.

**Ph.D.:** Faculty of Electrical Engineering, University of Zagreb (1979).

**Areas of scientific activities:** Electrical Engineering, Strategic Energy Planning, Energy Legislation, Energy Sector Organization and Management, Energy Supply Costs and Energy Pricing Policy.

**Awards received:**

- Silver plaquettes “Josip Lončar” for specially successful studies (1978)
- Award “Hrvoje Požar” for scientific contribution (1998)
- National award for science (1999)



**Prof. Vladimir Medved, Ph. D., was appointed Administrative Secretary-General of HATZ**

**Medved (Radovan) Vladimir, Zagreb, October 21, 1951**

**Graduated:** Faculty of Electrical Engineering, University of Zagreb (1974), B.Sc. Electrical Engineering, division electronics

**Ph.D.:** Faculty of Electrical Engineering, University of Zagreb (1988).

**Specialization:** Baloković Scholarship, Harvard University and MIT, Boston, USA; Postdoctoral Fulbright Scholarship, Harvard University (1990/91).

**Areas of scientific activities:** Biomedical Engineering, Biomechanics, Kinesiology, Biomedical Instrumentation, Electromyography, Biological Signal Processing, Human Locomotion Measurement

**Awards received:**

- Two first prizes by the rector of the University of Zagreb for student scientific works (1973 and 1974)



# Program of Activities of the Croatian Academy of Engineering, its Departments, Committees and Centers for 2006 accepted at the 21<sup>st</sup> Annual Assembly of HATZ

1. Publishing of herald in Croatian language "Tehničke znanosti"
2. Publishing of herald in English language "Engineering Power"
3. Publishing of the "Annual 2006 of the Croatian Academy of Engineering" with the updated "Who is Who in the Croatian Academy of Engineering"
4. Publishing of "Current Studies of Biotechnology, Vol. IV – Immuno-Modulatory Drugs" (Biotechnical Center)
5. Publishing of Proceedings of the Colloquium "Ethics in Application and Development of Engineering Sciences"
6. Participation in the production of "Technical Dictionary" (Department of Chemical Engineering)
7. Organization of the Scientific and Professional Meeting "The Life and Work of Nikola Tesla" June 28 and 29, 2006. The celebration as a whole is under the auspices of the Croatian Parliament. In collaboration with the Ministry of Culture the event will be marked in UNESCO in Paris on September 13, 2006
8. Sponsorship, organization and/or co-organization of following symposia:
  - "National Security and Traffic Perspective in the Republic Croatia" in Zagreb, February 27 and 28, 2006
  - "Knowledge-based Croatia – A Possible Contribution of the Croatian Scientists" in Zagreb, February 28, 2006
  - "Technological Aspects of Waste Treatment" in Varaždin, June 12 – 14, 2006 (Center for Environmental Protection and Development of the Sustainable Technologies)
  - "Magic World of Textiles" in Dubrovnik (Department of Textile Technology)
  - Seminar "Bologna Declaration at Technical Faculties" (Department of Architecture and Urban Planning)
  - Round table on the strategy of development of Croatian shipbuilding (Department of Mechanical Engineering and Naval Architecture)
9. Organization of the Elective Assembly (previous determination of number of free places), ceremony of presentation of HATZ Life Achievement Award, Annual Awards, Awards to the Young Scientists
10. Conclusion of the donation agreement with new supporting members
11. Full function of the House of the HATZ
12. Continuation of activities of introducing CARNET system and completion of address list to serve HATZ members
13. Regular activity of HATZ
14. Activation of the HATZ Foundation
15. Finishing the project MZOŠRH – STIRP "Potable Water – the Export Product" (Center for Development Studies and Projects)
16. Activation of the program of the Center for Lifetime Education. 6 seminars planned
17. Realization of organization of national "Network of Centers for Materials – MATNET" (Department of Mechanical Engineering and Naval Architecture)
18. Follow-up, proposal and execution of obligations taken as a part of CAETS, as well as participation at a yearly meeting
19. Follow-up, proposal and execution of obligations taken as a part of Euro CASE, as well as participation at semi-annual meetings
20. Participation in activities of harmonization of the Law on Croatian Engineering Chamber with the EU legislation
21. Other activities

# The HATZ Awards for 2005

The Assembly of the HATZ, at its 21st summit held on February 28, 2006, has decided upon the following laureates of the HATZ Awards for 2005:



Award for Life Achievement **Power of Knowledge** was presented to Prof. **Ivo Alfrević, Ph. D.**, for his entire scientific and research work in the area of technical sciences and for long-term contribution to advancement of the profession, with particular accent to the application of his research results.



Annual Award **Rikard Podhorsky** was presented to Prof. **Niko Majdandžić, Ph. D.**, for a specially valuable scientific and professional achievement realized during previous three years, with application in the economy.



Annual Award **Rikard Podhorsky** was presented to Prof. **Jagoda Radošević, Ph. D.**, for a specially valuable scientific and professional achievement realized during previous three years, with application in the economy.



Annual Award **Rikard Podhorsky** was presented to Prof. **Zorislav Sorić, Ph. D.**, for a specially valuable scientific and professional achievement realized during previous three years, with application in the economy.



Award to the young scientist **Vera Johanides** was presented to **Sandra Budžaki, M. Sc.**, for realized special personal scientific advancement and recognized scientific activity in the area of biotechnical sciences during the previous five year period.



Award to the Young Scientist **Vera Johanides** was presented to **Beata Halassy-Špoljar, Ph. D.**, for realized special personal scientific advancement and recognized scientific activity in the area of biotechnical sciences during the previous five-year period.



Award to the Young Scientist **Vera Johanides** was presented to **Igor Lacković, Ph. D.**, for realized special personal scientific advancement and recognized scientific activity in the area of technical sciences during the previous five-year period.



Award to the Young Scientist **Vera Johanides** was presented to **Hrvoje Pavlović, M. Sc.**, for realized special personal scientific advancement and recognized scientific activity in the area of biotechnical sciences during the previous five-year period.



Award to the Young Scientist **Vera Johanides** was presented to **Marina Trgo, Ph. D.**, for realized special personal scientific advancement and recognized scientific activity in the area of technical sciences during the previous five-year period.

# International Scientific and Professional Meeting “The Life and Work of Nikola Tesla”

The Croatian Academy of Engineering (HATZ), under Auspices of the Croatian Parliament, organized the International Scientific and Professional Meeting “The Life and Work of Nikola Tesla” on June 28-29, 2006 in Zagreb, Croatia.

The Meeting was technically co-sponsored by:

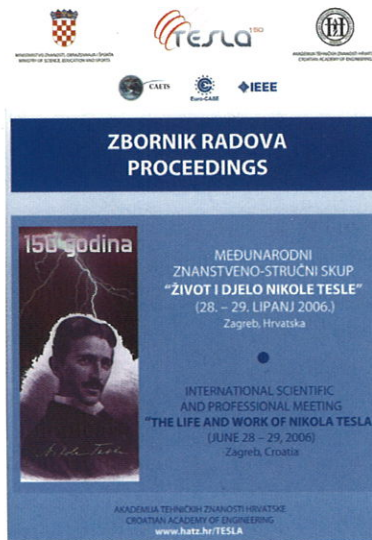
- CAETS (International Council of Academies of Engineering and Technological Sciences)
- Euro-CASE (European Council of Applied Sciences and Engineering)
- IEEE History Center (Institute of Electrical and Electronics Engineers – History Center)
- IEEE Croatia Section
- IEEE Region 8

The co-organizers of the Meeting were:

- Ministry of Science, Education and Sports RC
- Faculty of Electrical Engineering and Computing, University of Zagreb
- Hrvatska elektroprivreda, Inc.
- Ericsson Nikola Tesla, Inc.
- Energy Institute Hrvoje Požar
- KONČAR Group, Inc.
- Technical Museum, Zagreb
- Croatian Association of Engineers (HIS)

The Opening Ceremony of the Meeting was attended by the President of the Republic of Croatia Mr. Stjepan Mesić, President of the Croatian Parliament Mr. Vladimir Šeks, Prime Minister of the Croatian Government Mr. Ivo Sanader, Ph.D., Members of the Government, 14 Ambassadors accredited in the Republic of Croatia and another distinguished guests.

The Meeting was very successful, and attended by about 1200 participants.



## Program of the Meeting

### June 27, 2006, Tuesday – afternoon

- 14:00 – 19:00 Registration – (Croatian Academy of Engineering – HATZ, 28 Kačić St.)
- 19:00 – 21:00 Welcome Party – (Technical Museum Zagreb, 18 Savska St.)

### June 28, 2006, Wednesday – morning (Concert Hall “Vatroslav Lisinski”, 4 Stjepan Radić Sq., Zagreb)

- 08:00 – 09:00 Registration
- 09:00 – 09:45 Opening Ceremony

### Welcome address of the Minister of Science, Education and Sports of the Republic of Croatia, Dragan Primorac, M. D., Ph. D.

Dear participants,

It is a great honor and pleasure to greet you on behalf of the Ministry of Science, Education and Sports as well as on my own at the International Scientific and Professional Meeting “The Life and Work of Nikola Tesla”.

Because this year is the 150th anniversary of birth of Nikola Tesla, the Croatian Parliament, according to the proposal of the Croatian Government, proclaimed the year 2006 to be “The Year of Nikola Tesla”, and gave great acknowledgement to our scientist with worldwide reputation. Planned activities and events, from professional to scientific, from cultural to economic, all related with Nikola Tesla's creations and work, are our humble expression of gratefulness to the great man Nikola Tesla was.

When we speak about Nikola Tesla, we speak about a scientist before his time, about a visionary whose hundreds of recognized and variety of still unrecognized inventions

are only a part of the ideas he reflected upon, but had never been able to achieve. Nikola Tesla dedicated his life to the research which would facilitate the human living and improve the human civilization. He was an inventor whose results remained an epochal heritage to the entire mankind.

Today the science is in far more favorable position than it had been in Nikola Tesla's time. The Ministry that I govern, aware of the significance of the science and the scientific work, is trying to ensure as adequate conditions for work of scientists and researchers as can be, using concrete measures and programmes. For the scientific community, the important preconditions for the development of this system are the started projects of return of the Croatian scientists from abroad and their networking with the scientific diaspora as well as the encouraging of excellence in cooperation with the Scientific Foundation for Science, Higher Education and Technological Development of the Republic of Croatia and the World Bank, together with creation of the Croatian Scientific Gateway as an all-encompassing network server. Our aim is to ensure the working conditions in Croatia for the scientists as well as the possibility of exchange of knowledge and ideas with their colleagues abroad. In March 2006 we founded the Croatian Technological Institute (HIT), which is about to have a key role in consolidation of the scientific, educational and technological results in the Republic of Croatia, having in mind that the scientific ideas and projects may be realized by practical application only.

The International Scientific and Professional Meeting "The Life and Work of Nikola Tesla" as well as the papers that you, as distinguished scientists from all over the world, have prepared, and which are collected in this Proceedings, are a significant contribution to celebration of the Year of Nikola Tesla. Therefore I wish you a successful work at the Meeting, and before all else, the exchange of the scientific and expert ideas and opinions by which you will certainly contribute to further studying of the work of Nikola Tesla.

Dragan Primorac, M.D., Ph.D.

### Welcome address by I. Sanader, V. Šeks and opening by S Mesić

- 09:45 – 10:30 "Nikola Tesla: scientist, engineer, inventor" – H.K. Forsen, Ph.D. – National Academy of Engineering, USA
- 10:30 – 10:45 "Tesla Vision lives on in Ericsson" – Carl-Henric Svanberg, President and CEO Ericsson, Sweden
- 10:45 – 11:15 "Tesla's time and application of his achievements in the future" – K. R. Richter, Ph.D., Prof. Emer., Technical University of Graz, Austria, Hon. Mem. of the HATZ
- 11:15 – 11:45 "Some recent recognition of pioneering role of Nikola Tesla in the development of Radio" – A. Marinčić, Ph.D. – Serbian Academy of Sciences and Arts, Serbia and Montenegro
- 12:00 – 12:15 "Nikola Tesla and KONČAR Group" – S. Car, Ph.D. – KONČAR – Electrotechnical Institute, Inc.
- 12:15 – 12:30 "European power systems interconnection" – Ivica Toljan, M.Sc. – HEP, Inc. – CIGRÉ
- 12:30 – 12:45 MOVIE produced by HEP, Inc. "Development of the Electric Power System in Croatia"

### Scientific Session

#### THE VISIONS AND WORK OF NIKOLA TESLA: TODAY AND TOMORROW

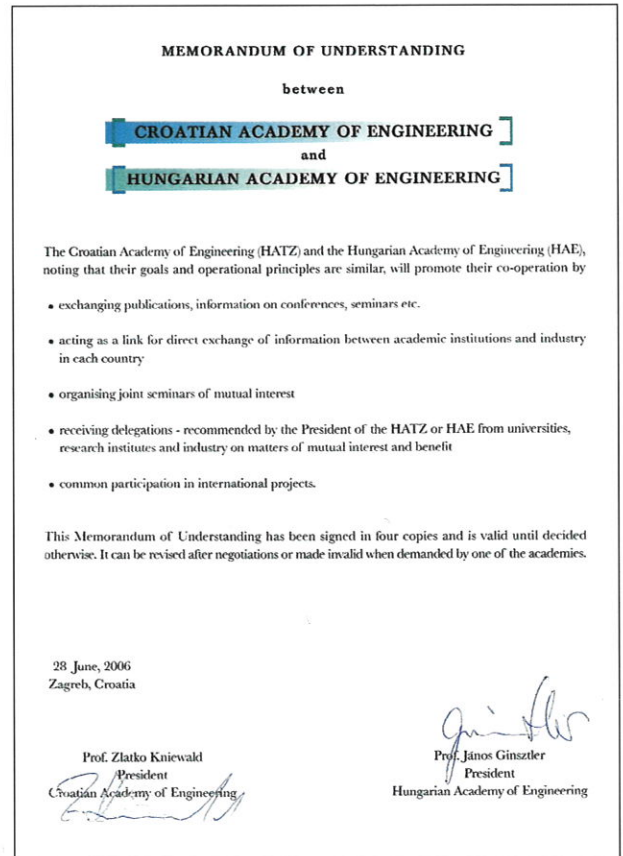
June 28-29, 2006, (Ministry of Economy, Labor and Entrepreneurship of the Republic of Croatia, 78 Vukovar St., Zagreb)

*June 29, 2006 afternoon visit to Smiljan – Tesla's born place Memoria Center*



## Croatian Academy of Engineering signed the Memorandum of Understanding with the Hungarian Academy of Engineering

Croatian Academy of Engineering signed the Memorandum of Understanding with the Hungarian Academy of Engineering on June 28, 2006, during the International Scientific and Professional Meeting “The Life and Work of Nikola Tesla”



## President of the Republic of Croatia presented the highest national decoration to Z. Kniewald, president of HATZ

On June 30, 2006, by decision of the President of the Republic of Croatia, His Excellency Mr. Stjepan Mesić, and in accordance with the Article 97 of the Constitution of the Republic of Croatia, Prof. Zlatko Kniewald, Ph. D., President of the Croatian Academy of Engineering, has been decorated by the Order of Danica hrvatska with the Image of Nikola Tesla.

The ceremony of granting of the highest Croatian national orders was held on the occasion of 150th Anniversary of birth of Nikola Tesla. Besides Prof. Zlatko Kniewald, Ph. D., the President of the Republic decorated by the Order of Danica hrvatska with the Image of Nikola Tesla for the outstanding merits in innovation also Gordana Kovačević, M. Sc., Zvonimir Vađon, B. Sc., Prof. Milan Mesić, Ph. D., Mladen Merćep, Ph. D. and Prof. Davor Pavuna, Ph. D.

The President of the Republic presented the Charter of the Republic of Croatia to Ericsson Nikola Tesla company for its special contribution to scientific, economic and other aspects of development of Croatia.

Congratulations to all laureates for their merits being acknowledged by the highest Croatian national institutions!





## New Members of the Croatian Academy of Sciences and Arts (HAZU)

### Marin Hraste, Full Member



**Marin Hraste** was born September 24, 1938 in Sisak. He graduated at the Faculty of Technology in Zagreb in 1962, obtained a M.Sc. degree from the Faculty of Pharmacy and Biochemistry in Zagreb in 1969 and a Ph.D. degree in the area of chemical engineering from the Faculty of Technology in 1972.

He is a Full Member of the Croatian Academy of Engineering (HAZU), a Founding Member of the Croatian Systems Society (CROSS), member of Croatian Association of Chemical Engineers and Technologists, and in numerous occasions he chaired in its Chemical Engineering Section. He is a Croatian representative to the European Chemical Engineering Federation and a member of the Editorial Board of the journal "Chemistry in Industry" (in Croatian).

By his scientific, teaching and professional activity he contributed in chemical engineering to become a recognizable scientific discipline in Croatia.

### Mladen Obad-Šćitaroci, Collaborating Member



Prof. Mladen Obad-Šćitaroci, Full Member of the Croatian Academy of Engineering, has been appointed Collaborating Member of the Croatian Academy of Sciences and Arts, Department of Visual Arts, on May 18, 2006. By landscape and gardens architecture as the main research subjects he has contributed significantly to the Croatian culture. He has accomplished an outstanding international scientific and research as well as publishing activity.

## Members of the Croatian Academy of Engineering – Laureates of the National Science Awards for 2005

The ceremony of presentation of the National Science Awards for 2005 took place on June 27, 2006 in the Croatian Parliament. On this occasion 32 Croatian scientists have been awarded, among whom were also 3 scientists – members of the Croatian Academy of Engineering.



Prof. **Većeslav Čorić**, Ph. D., HATZ Associate Member from the Department of Mechanical Engineering and Naval Architecture,



and Prof. **Drago Katović**, Ph. D., HATZ Associate Member from the Department of Textile Technology, have been granted the Annual Award for Science in the field of technical sciences.



Prof. **Đurđa Vasić-Rački**, Ph. D., HATZ Associate Member from the Department of Chemical Engineering, has been granted the Annual Award for Science in the field of biotechnical sciences.

Congratulations, and may they continue their successful scientific activity in the future!

## Prof. Ivo Soljačić, Ph. D., the 2005 Laureate of the Fran Bošnjaković Award



Prof. Ivo Soljačić, Ph. D., our Full Member from HATZ Department of Textile Technology, is the Laureate of the Fran Bošnjaković Award for 2005, which is being granted by the University of Zagreb for sixteen years now.

This prestigious Award is granted to the individuals in Croatia and abroad for their outstand-

ing scientific results, promotion of scientific discipline and profession as well as for knowledge transfer, especially education and pedagogical formation of young experts in the field of technical sciences within the University of Zagreb.

Congratulations to Prof. Ivo Soljačić, Ph. D., for his achievements and merits being awarded by this distinguished Award, and best wishes for success in his future work as a scientist and a teacher!

## The City of Zagreb Award presented to Prof. Hildegard Auf-Franić, Ph. D.



Nominated by the Croatian Academy of Engineering, Prof. Hildegard Auf-Franić, Ph.D., a Full Member of the HATZ Department of Architecture and Urban Planning, has been awarded by the Annual City of Zagreb Award for significant achievements in planning, programming and designing public buildings, with which she contributed to the knowledge of architectural design.

Hildegard Auf-Franić has graduated in 1965 at the Faculty of Architecture, University of Zagreb, and completed her postgraduate studies in 1967 at the Master's Workshop of the Croatian Academy of Sciences and Arts under the mentorship of Academician Drago Galić. She has been employed at the Faculty of Architecture since 1974, and has been a Full Professor of at courses "Buildings for Preschool

and Elementary Education" and "Buildings for Secondary and Higher Education". She co-authored the book "Elementary Schools: Programming, Planning and Designing" published in 2004.

She received numerous awards, among others the Croatian Architects' Association Annual Award "Viktor Kovačić" for the best completed project in 1996, the Annual National Award of the Ministry of Culture "Vladimir Nazor" for architecture in 1996 and the Annual Award of the Croatian Academy of Engineering "Rikard Podhorsky" in 2005, the medal Red Danice hrvatske with the Image of Ruđer Bošković for her scientific contributions in 1998, and the medal Red Danice hrvatske with the Image of Marko Marulić for her contributions to the arts in 1999.

**Congratulations to Professor Auf-Franić for this important recognition!**

## The HAZU Award for 2005



**Prof. Jurica Sorić, Ph. D.**

The Presidency of the Croatian Academy of Sciences and Arts (HAZU) at the summit of March 29, 2006 has decided upon Awards of the HAZU for highest scientific and artistic achieve-

ments in the Republic Croatia for 2005. In the area of technical sciences our Associate Member, Prof. Jurica Sorić, Ph. D., was awarded for his entire scientific work.

**Congratulations to Professor Sorić for this important recognition!**

## “Engineering in Life Sciences” dedicated to HATZ Associate Member Prof. Đurđa Vasić-Rački, Ph. D.



The issue is dedicated to the 60th birthday of Professor Dr. D. Vasic-Racki.

*Eng. Life Sci.* 2006, 6 (2).

This issue of Engineering in Life Science gathers most of the speakers of the 2nd German-Croatian Conference on Enzyme Reaction Engineering, which was held in Dubrovnik/Cavtat, Croatia in September 2005. This confer-

ence was co-chaired by Prof. Dr. C. Wandrey (Institute of Biotechnology 2, Research Centre Jülich) and Prof. Dr. D. Vasic-Racki (Faculty of Chemical Engineering, University of Zagreb) and is the result of a more than fruitful collaboration between these two working groups for more than twenty years.

## Symposium “Waste Treatment Technologies”

Rapid technological development of Croatia brings also the problems of waste accumulation. Resolvment of existing depositories as well as building of new ones aren't the only solution for treatment of waste, both of communal and of industrial origin. Technical solutions of processing are seeked so as to decrease its volume and quantity, as well as to use waste as a resource for production of new products and/or energy. Technologies of recycling, decrease and deposition of waste will soon cease to satisfy the postulates of sustainable development. Already now the need is seen to change the shape and volume features of products, and to perfect technological processes and technologies that will enable their better recyclability, pursuing principles of following the product life cycle. By synergy of technical and scientific communities this concept may spread to those controlling industrial development, to local political structures and non-government organizations.

Croatian Academy of Engineering, supported by the Ministry of Environmental Protection, Physical Planning and Construction (službeni naziv s internetskih stranica Ministarstva) has organized the Symposium “Waste Treatment Technologies”.

The aim of the Symposium was – through the presentation of modern aspects of environmental protection in research, development and application of waste treatment technologies – to show the newest achievements. Further, to stimulate the exchange of opinions between technical and scientific community, economic and political factors, non-governmental associations etc.

The Symposium was held on June 12-14, 2006 in the “Turist” Hotel in Varaždin. During two days 35 contributions were presented, while the third day a visit was made to the recycling facility for automobile tires by the firm GRP, Ltd., Varaždin.

Branko Salopek

# “Systems thinking and the process of integration of Croatia in the European Union”

Symposium on the occasion of the 15<sup>th</sup> Anniversary of the Croatian Systems Society, April 21, 2006, Zagreb



The above mentioned Symposium was devoted to the actual problems of approaching to the standards of the European Union in various areas of activity of importance for the functioning of our society, and it was held on the occasion of the 15th anniversary of the activity of the Croatian Systems Society. The primary intention of establishing the Society, in 1991, was to connect professionals of different areas to

study together problems of the new state. Through a series of projects, initiatives and thematic meetings, in the previous period many important subjects, which were relevant primarily for economy, have been elaborated.

This Symposium has, also, reflected a highly inter- and multi-disciplinary approach to the subject matter by participating of professionals from social, natural and engineering sciences. Through six discussions in total, vital systems knots were identified in relation to joining of Croatia to the European Union. They relate in the first place to the structure of industry, energetics, agriculture, environment, education and science. Many subjects were treated, like, for instance, connection of scientific research and postgraduate studies, regional development based on clusters, water – the challenge of the future, technological centres and economy development. The author of this contribution has found particularly interesting the subjects of scientific diplomacy (Zdenko Franić) and of Croatian innovation system (Juraj Bužičević). Alojz Caharija, President of the Society, gave overview of its work from the beginning.

Vladimir Medved

## Symposium on Differential-Geometric Methods in Multibody Dynamics, Non-linear Dynamics and Control

Prof. Zdravko Terze, Ph. D., served as organizer and Chairman of the ‘Symposium on Differential-Geometric Methods in Multibody Dynamics, Non-linear Dynamics and Control’ that was organized in the framework of ‘5th ASME International Conference on Multibody Systems, Nonlinear Dynamics and Control’, Long Beach, California, USA, September 2005.

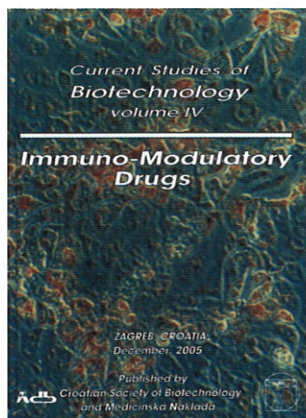
Fifteen papers by authors from the USA, EU and Japan, divided in three sections, were presented during the Symposium. The papers covered topics that included mathematical modeling and control of non-linear constrained mechanical systems as well as application of numerical modeling based on differential-geometric approach to different problems in domain of mechatronics, aerospace, vehicle dynamics and non-linear control.

Mathematical methodology and numerical procedures that were in focus of the Symposium have found numerous applications in contemporary engineering, especially in the framework of advanced simulation domain, computational techniques and preliminary product design and control.

Distinguished international scientists as well as members of the Croatian Academy of Engineering and the Croatian Academy of Sciences and Arts served as peer-reviewers of the papers that were accepted for presentations and published in the Conference Proceedings. The Proceedings of the Conferences that are being organized by ASME are widely recognized as distinguished publications in the framework of engineering sciences.

Zdravko Terze

## “Immuno-Modulatory Drugs”



place in Zagreb in February, 2005. The Conference was

Croatian Society of Biotechnology, in co-operation with Medicinska naklada, Ltd., has published Vol. IV of the serial publication “Current Studies of Biotechnology” – “Immuno-Modulatory Drugs”. The Vol. IV of this publication, on 170 pages, encompassed the papers presented at the International Conference “Biotechnology and Immuno-Modulatory Drugs”, which took

co-organized by the Croatian Academy of Engineering, Croatian Academy of Medical Sciences, Scientific Council for Technological Development of the Croatian Academy of Sciences and Arts, PLIVA Croatia, Ltd. and Faculty of Food Technology and Biotechnology of the University of Zagreb. Just like previous three volumes (Vol. I – “Biomedicine”, February, 2000, Vol. II – “Environment”, February, 2001 and Vol. III – “Food”, February, 2003), the Vol. IV represents a continuous contribution of the Croatian Academy of Engineering to promotion of the development and application of biotechnology in Croatia as well as abroad. The publications are available in the HATZ Library.

Zlatko Kniewald, Editor-in-Chief  
“Current Studies of Biotechnology”

## Publications from the First Congress of the Croatian Scientists from Homeland and Abroad

**Book of Abstracts – First Congress of the Croatian Scientists from Homeland and Abroad.** Zagreb – Vukovar, November, 15-19, 2004 (Dubravka Skender, Pavo Barišić and Juraj Božičević, Editors), Zagreb, Ministry of Science, Education and Sports of the Republic of Croatia, 2004. ISBN 953-6569-08-6 (in Croatian)

**Book of Abstracts of Posters by Scientific Novices presented internationally in 2002, 2003 and 2004, Part I, Natural, Engineering and Biotechnical Sciences.** (First Congress of the Croatian Scientists from Homeland and Abroad. Zagreb – Vukovar, November, 15-19, 2004 Zlatko Kniewald, Editor-in-Chief), Zagreb, Croatian Academy of Engineering, 2004. ISBN 953-7076-06-7

**Book of Abstracts of Posters by Scientific Novices presented internationally in 2002, 2003 and 2004, Part II, Biomedical Sciences, Social Sciences and Human-**

**ties. First Congress of the Croatian Scientists from Homeland and Abroad.** Zagreb – Vukovar, November, 15-19, 2004 Zlatko Kniewald, Editor-in-Chief), Zagreb, Croatian Academy of Engineering, 2004. ISBN 953-7076-07-5

**Proceedings – First Congress of the Croatian Scientists from Homeland and Abroad.** Zagreb – Vukovar, November, 15-19, 2004 (Pavo Barišić, Editor-in-Chief), Zagreb, Ministry of Science, Education and Sports of the Republic of Croatia, 2006. ISBN 953-6569-21-3 (in Croatian)

By the initiative of the Ministry of Science, Education and Sports of the Republic of Croatia, on November 13-17, 2004, the First Congress of the Croatian Scientists from Homeland and Abroad was organized, in Zagreb and Vukovar. This initiative represented an attempt to connect



our scientific potential abroad – of an appreciable size – with the domestic one, so as to contribute to aimed progress. Prior to the beginning of the Congress, the three above mentioned accompanying publications were published: the Book of Abstracts and two Books of Abstracts of Posters by Scientific Novices presented internationally in 2002, 2003 and 2004, while only recently, approximately one year and a half after the Congress, also the final Proceedings of appeared (the fourth title). The accompanying video material on two DVDs is also produced. The combination of works written and video material is thus completed, providing a significant document to this event.

The Proceedings of Poster Abstracts might be found in the Archive of News at the web site of the HATZ, which, it has to be said, has given a significant contribution to the organization of poster presentation, as well as – by participation of its numerous members – of the Congress as a whole.

In the remaining two proceedings, the one of posters and, especially, the one of the works (Pavo Barišić, Editor) a number of valuable critical treatments of certain areas is presented. It is interesting, so, to read critical reviews by particular experts representing short review descriptions of respective areas with evaluation of future development.

This is a “cut-through of the current status” of a kind in our science and high education. Included are: natural sci-

ences (Vladimir Paar and Davor Pavuna, moderators), engineering sciences (Ivica Crnković and Darko Stipaničev), biomedicine and health (Željko Bošnjak and Daniel Rukavina), social sciences (Stjepan G. Meštrović and Ivo Josipović), humanities (Vladimir Peter Goss and Mislav Ježić) and biotechnical sciences (Stanimir Vuk-Pavlović and Gordana Kralik). Proceedings of works is nicely graphically edited and illustrated by appropriate photographs.

The accompanying DVD material enables, in addition, authentic insight into Congress presentations, reflecting well the working atmosphere of these days.

By including a large number of scientists from homeland and abroad a relevant basis of experts was established (the basis is open), which might be actively used for various needs (review of program and project applications).

As a Congress participant and author and co-author of written contributions in the Proceedings of works and student poster abstracts, I may state in conclusion that the mentioned publications offer a lot of interesting material to each professional, especially the last book, so they may be recommended to libraries of educational institutions and institutes.

Vladimir Medved

# The 16<sup>th</sup> CAETS Council Meeting

June 2, 2006, the Royal Belgian Academy Council of Applied Sciences – BACAS, Academy Palace, rue Ducale/Hertogsstraat 1, Brussels, Belgium

## CAETS Bylaws

### ARTICLE 1 – Objectives

Consistent with its Articles of Incorporation and in support of its mission, CAETS will:

a. Provide an independent nonpolitical and nongovernmental international organization of academies of engineering and technological sciences, prepared to advise governments and international organizations on technical and policy issues related to its areas of expertise;

b. Contribute to the strengthening of engineering and technological activities in order to promote sustainable economic growth and social welfare throughout the world;

c. Foster a balanced understanding of the applications of engineering and technology by the public;

d. Provide an international forum for discussion and communication of engineering and technological issues of common concern;

e. Foster cooperative international engineering and technological efforts through meaningful contacts for development of programs of bilateral and multilateral interest;

f. Encourage improvement of engineering education and practice internationally;

g. Foster establishment of additional engineering academies in countries where none exist;

h. Undertake other projects, programs, and activities not inconsistent with section 501 (c)(3) of the Internal Revenue Code and any applicable law of the District of Columbia.

## Council Agenda

EXECUTIVE SESSION (Attendance limited to Member Academy Delegations)

1. Opening and Approval of the agenda
2. Approval of the Summary Minutes of the Council Meeting, July 14, 2005 [Summary Minutes of Board of Directors Meeting of July 10 – 14, 2005 of Executive Committee Meetings of July 10, 2005, December 9, 2005 and April 1, 2006,
3. Report of the May 31, 2006 Meeting of the Board of Directors
4. Election of Board Membership for 2007

## OPEN SESSION

Welcome and Introduction of Guests

5. Administrative Issues
  - a. Audit Committee Report on FY 2005
  - b. 2007 Dues and Budget

c. Proposal for two-year term for Members of the Board of Directors

d. Distribution of CAETS Statement “Oceans and the World’s Future”

e. Future CAETS meetings: 17 th Convocation, Tokyo, October 23-26, 2007

6. Report of Committee on CAETS Membership Comments from Visiting Academy Representatives
7. Report of Committee on International Organizations Cooperation with:
  - a. IAC and comments by John Campbell
  - b. ICSU and comments by Joachim Luther and Laurie Geller
  - c. UNESCO and comments by Tony Majoram
  - d. WMO
  - e. WFEO
8. Roundtable Discussion – Engineering Education Presentations by Ludo F. Gelders, BACAS, Jun-ichi Nishizawa, EAJ, Wm. A. Wulf, NAE, US, Proposal for Workshop d. R. Natarajan, INAE
9. Approval of CAETS Statement on “The Hydrogen Economy – Clean Energy for this Century” from the Meeting hold 1.June 2006, at the Academy Palace – rue Ducale/Hertogstraat 1, 1000 Brussels
10. Discussion on Status of National Attention on Nuclear Powered Electricity Production
11. Issues of Concern
12. Activities of Interest
13. New Business
14. Presentation of Certificates
15. Adjourn

## Attendance of Member Academy Delegations Representatives (Rep.), Observers, and Guests

**\*Member, 2006 Board of Directors, (NA – no rep. attending)**

ANI, Argentina, Rep. NA, ATSE, Australia, Rep. John Zillman\*, John Dodgson, BACAS, Belgium, Rep. Guy Haemers, Pierre Klees, Paul Verstraeten, Jean-Jacques Van de Berg, Philippe Bourdeau, Ludo Gelders, CAE, Canada, Rep. Philip Cockshutt, CAE, China, Rep. SHEN, Guofang, CHENG, Jiayi, XU Haiyan, YI, Baolian, HATZ, Croatia, Rep. Zlatko Kniewald, EA CR, Czech Republic, Rep. Petr Zuna, Milos Hayer, ATV, Denmark, Rep. NA, FACTE, Finland, Rep. Asko Saarela\*, NATF, France, Rep. Bruno Jarry, acatech, Germany, Rep. Reiner Kopp, MMA, Hungary, Rep. NA, INAE, India:, Rep. R. Natarajan\*, Tuhin Roy,

EAJ, Japan, Rep. Jun-ichi Nishizawa\*, Tsuneo Nakahara, Eliichi Kumabe, NAEK, Korea, Rep. Wook Hyun Kwon, Ki-Jun Lee, Kun Woo Lee, Seong Ahn Hong, Eun Yeong Park, Seon Ah Hwang, AI, Mexico, Rep. Gerardo Ferrando\*, NFTW, Netherlands, Rep. Ben Veltman, NTVA, Norway, Rep., RAI, Spain, Rep. Andres Ripoll, IVA, Sweden, Rep. Per Storm, Hans Forsberg, SATW, Switzerland, Rep. René Dändliker\*, Hans Hanni, RAEng, United Kingdom, Rep. Peter Saraga, Philip Greenish, Keith Davis, NAE, United States, Rep. Wm. A. Wulf, George Bugliarello, Michael Ramage, Lance Davis, ANIU, Uruguay, Rep. NA,

**CAETS**

President Achiel Van Cauwenberghe\*, Sec./Treas. William C. Salmon\*

**Guests:** Robert St. Leger, South African Academy of Engineering, Gonzalo J. Morales, ANIH, Venezuela, Joachim Luther and Laurie Geller, ICSU, Tony Majoram, UNESCO, John Campbell, IAC

**Election of Board Membership for 2007**

The Council approved the following Board membership for the period January 1, 2007 through December 31, 2007

President Jun-ichi Nishizawa EAJ, Japan, President-elect Gerard van Oortmerssen NFTW, Netherlands, Secretary, Treasurer William C. Salmon United States, Past President Achiel Van Cauwenberghe BACAS, Belgium, Member Andres Ripoll AIE, Spain, Member ANI, Uruguay, Member NATF, France, Member Petr Zuna EA CR, Czech Republic,

Brief bios on the nominated new members of the Board were presented

The Board membership for the period January 1, 2006 through December 31, 2006:

President Achiel Van Cauwenberghe BACAS, Belgium, President-elect Jun-ichi Nishizawa EAJ, Japan, Secretary, Treasurer William C. Salmon United States, Past President John Zillman ATSE, Australia, Member Gerardo Ferrando-Bravo AI, Mexico, Member Rene Dandliker SATW, Switzerland, Member R.Natarajan INAE, India, Member Asko Saarela FACTE, Finland

**The Rotation Schedule:** HATZ, Croatia: Board member 2001, 2005, 2009

**a. Audit Committee Report on FY 2005 approved**

**b. 2007 Dues and Budget**

On December 9, 2005, the Executive Committee agreed that there was no reason to propose, at that time, any changes to the dues structure for 2007. For Croatia 1,000 \$.

**Budget for FY 2007**

The FY 2007 Budget reflects past expenses and expected 2007 increases in printing and travel expenses. The Council approved the proposed budget for FY 2007.

	FY 2006	Approved FY 2007
Revenue expected	\$ 73,000	73,000
Expenses Budget		
Bank Expenses	\$ 150	150
Communications	\$ 1,500	1,500
Equipment	\$ 2,000	2,000
Legal – Prof. Fees	\$ 100	100
Management Fee	\$ 36,000	36,000
Meetings	\$ 500	500
Postage, Delivery	\$ 2,500	2,200
Printing	\$ 2,500	2,800
Supplies	\$ 750	750
Travel	\$ 8,000	10,000
Sub-total	\$ 54,000	56,000
Strategy Implementation	\$ 12,000	12,000
Total	\$ 66,000	68,000

**c. Proposal for Two-year Term for Members of the CAETS Board of Directors**

At its meeting on April 1, 2006, the Executive Committee reviewed an earlier suggestion that Board Members serve two years to permit them to take a more active part in the Board and Council meetings of their second year, assuming they would attend the two Board and Council meetings during their term. This would continue the current practice of electing four Board members each year, it would expand the Board to 12 members (4 Officers and 8 Members), and require an amendment to the Bylaws. Serving for one year on the Board of Directors usually involves only one Board meeting and for some people only one Council meeting. This gives one little opportunity to understand the operations of CAETS and to become involved in contributing to its work and discussions. The proposal to extend the term to two years assumes that each such Board member would attend two Board meetings and at least two Council meetings. This would permit the person to undertake some activity during their second year, such as lead a discussion during a Council meeting or conduct a survey between Council meetings. For some representatives of member academies the two-year term would present no financial problem and would be a welcome opportunity to be more involved in CAETS. For some, particularly from the smaller academies with very limited budgets, attending two Council meetings in succession could become a financial hardship. The Executive Committee would welcome a discussion of this proposal so that if the consensus would be to proceed with such a proposal appropriate draft text could be prepared and circulated among the member academies for comment with a view to presentation for approval at the October 2007 Council meeting. Should such be approved at that time, the first opportunity for the two-year term to be effective would be beginning with the 2008 Board.



#### **d. Distribution of CAETS Statement “Oceans and the World’s Future”**

Distribution efforts were made by member academies of this CAETS Statement developed at the Convocation in Cairns, Australia, during July 10-14, 2005.

#### **e. Future CAETS meetings**

The 17<sup>th</sup> Convocation is scheduled for Tokyo, Japan during Tuesday to Friday, October 23-26, 2007. The Executive Committee and the Board of Directors will meet on Monday, October 22, 2007. EAJ will provide a more detailed description at the Council meeting.

Representatives of member academies hosting future CAETS Council meetings and Convocations were invited to briefly comment on the status of their plans.

#### **Report of Committee on International Organizations (CIO)**

1. The CAETS Committee on International Organizations (CIO) was established by the July 2005 (Cairns) Meeting of the Council with membership consisting of: John Zillman, ATSE (Chair); Bruno Jarry, NATF; Tsuneo Nakahara, EAJ; and George Bugliarello, NAE; with assistance from Bill Salmon, Secretary/Treasurer. Its terms of reference were to follow-up, on behalf of the CAETS Council and Board of Directors, matters associated with the first-listed priority of the CAETS Strategy 2006-10 on ‘Engagement with the United Nations Specialised Agencies and Related International Organisations’ with the mission to ‘Develop and implement an ongoing advisory/consultative role, with appropriate CAETS recognition, with the relevant scientific/technological organs of the United Nations (UN) system’. The elaboration of this mission and the immediate goals for the first two years are set down in the Strategy.

2. The Committee has carried out its work by e-mail and correspondence along with one teleconference held on 3 March 2006 and a number of meetings, involving individual members of the Committee, with UN and other officials. In summary, initial contact has been established at Executive Head level, and informal working relations have been put in place, with the: United Nations Educational, Scientific and Cultural Organization (UNESCO); World Meteorological Organization (WMO); and the United Nations Environment Programme (UNEP); and contact established at lower levels with the: Food and Agriculture Organization (FAO); United Nations Development Programme (UNDP); and the United Nations Commission for Sustainable Development (CSD); with the most positive responses

from, and follow-up discussions on areas of potential collaboration held with, UNESCO and WMO.

3. In order to ensure effective co-ordination with CAETS’s non-governmental partners in dealing with the relevant agencies of the UN system, discussions were also initiated at the appropriate levels, and informal working arrangements put in place, with WFEO (World Federation of Engineering Organizations), ICSU (International Council for Science), the Inter-Academy Council (IAC) and the Inter-Academy Panel on International Issues (IAP). In the spirit of these arrangements and with the endorsement of the CAETS Board of Directors, CAETS joined in, *inter alia*, as a co-signatory with a number of other international scientific, engineering and medical organisations on a statement to world leaders on the role of science, technology and engineering in support of the Millennium Development Goals (MDGs).

4. Among the specific initiatives carried forward under the auspices of the CIO with endorsement by the Executive Committee were: preparation of a leaflet on CAETS for immediate distribution to relevant UN and other organisations as well as for wide distribution at sessions of the governing bodies of the UN agencies and to relevant governmental and non-governmental contacts within CAETS member academy countries; preparation of a short document on ‘Guidance for CAETS member academies on input to their governments’ role in UN bodies’, survey of member academies’ links with Intergovernmental and Non-governmental Organisations working within the sphere of expertise of CAETS (in preparation).

5. Arrangements were also made, in line with the Strategy, for (low-key) CAETS representation at the 2005 sessions of the governing bodies of UNESCO and ICSU and representation at the 2006 meeting of the IAC Board supported by follow-up liaison at Secretariat level on possible joint activities

6. The members of the CIO would be pleased to elaborate on this summary report as needed. Copies of all relevant correspondence, records of discussions and draft working arrangements with relevant bodies are held by the Secretary/Treasurer.

7. In line with whatever guidance the Council may wish to provide, the CIO will be pleased to continue its initiatives on fostering of working relations with appropriate UN system bodies in consultation/collaboration with its non-governmental partners. A further report will be provided to the 2007 meeting of the Council including proposals for updating the relevant parts of the CAETS Strategy at that time.

Zlatko Kniewald

## 7<sup>th</sup> WFEO World Congress on Engineering Education

(Budapest, March, 4-8, 2006)

On March 4-8, 2006 in organization of the WFEO and Hungarian Academy of Engineering (MMA), the 7<sup>th</sup> WFEO World Congress on Engineering Education took place, and Prof. Zlatko Kniewald, Ph. D., as an invited lecturer, presented a lecture entitled "Development of the biotechnology engineers "title" in the past 45 years – Croatian experience". The lecture was prepared by authors: Zlatko Kniewald, Višnja Gaurina Srček and Jasna Kniewald.

On March 5, 2006 at 1:00 PM, according to the HATZ suggestion, and based upon a formal letter sent by HATZ by the end of February 2006, we met with Prof. J. Ginzstler, Ph. D. in the Hotel Gellert. Prof. J. Kniewald, Ph. D., Chairlady of the HATZ Committee for International Co-operation, and Ms. Zsuzanna Sarkozi-Zagoni, who was in charge of the international co-operation of the MMA, also participated at the meeting. Prof. Zlatko Kniewald informed Prof. J. Ginzstler about the International Scientific and Professional Meeting "The Life and Work of Nikola Tesla", which was about to take place in Zagreb, Croatia, on June 28-29, 2006 as well as about the proposal and wish of the Croatian Government for Hungary to join the Meeting on the occasion of celebration of "2006 – The Year of

Nikola Tesla", since Tesla had spent a part of his life working in Budapest.

Prof. J. Ginzstler accepted the invitation with pleasure and agreed to participate at the Meeting personally as the President of the Hungarian Academy of Engineering. He also expressed his wish that more MMA members from Tesla's field of work would be informed and participate at the Meeting. He also proposed that the participants of the Budapest Congress should be informed about the Tesla Meeting, and provided for this to be done. About 30 Tesla Meeting leaflets in English were distributed immediately. At the same time, and by Prof. J. Ginzstler's kindness, Prof. Istvan Berta, Ph. D. and Mr. S. Jeszenszky were informed about Tesla Meeting. Prof. J. Ginzstler mentioned that the Meeting could help initiate some other potential collaboration with the scientists in this field, and proposed this to be a topic of discussion during the Meeting in Zagreb. During the conversation, carried out in a very pleasant and friendly atmosphere, Prof. J. Ginzstler was informed about the program and activities of the HATZ. The meeting was concluded at 13:50 PM.

Zlatko Kniewald

## Semi-annual Euro-CASE Board Meeting, the European IST Prize Awards Ceremony, and meeting with the President of the Austrian Academy of Engineering, Prof. H. Mang

(Vienna, March 22-24, 2006)

In 2005 Croatian Academy of Engineering has been an Associate Member of the Euro-CASE and since then regularly participates at the Euro-CASE Board semi-annual meetings. The last of such meetings took place on March 23, 2006 in Vienna, Austria. This year's Ceremony of the European IST Prize Awards, which are being presented annually for the best achievements in growth an appliance of information technology, took place on March 22 and thus preceded the Euro-CASE Board Meeting. These Prize

Awards have been granted under the sponsorship of the EU, and this year the ceremony was realized in Hofburg, Vienna.

On March 23, 2006 in the forenoon a regular Euro-CASE Board Meeting was held in the Austrian Academy of Sciences at Dr. Ignaz Seipel-Platz 2, Vienna.



On the Euro-CASE Board Meeting Agenda there was the report on realization of its Program in 2005, the report on received payments for 2006, and the debate on establishing the alternate fund in which each Member Academy should pay its subscription for three years in advance. The last issue is still under consideration, although some of the members have already fulfilled their obligations. HATZ stands on the position of building the fund for a better operability of the Euro-CASE, but it will fulfill its obligation when that will be done by a majority half of the Euro-CASE Full Member Academies. During the year 2006 HATZ will pay its rate to the alternate fund in amount of an annual subscription, and during next year it will fulfill the other part of its obligation if all other members do the same.

Further debate dealt with the expansion of the Euro-CASE also to potential future members of the EU. Thus Romania has been admitted to the Euro-CASE as an Associate Member, and in next period applications may be expected by some EU members, which have not become the members of the Euro-CASE yet.

Under the Item 4, President of the Council of Technical Sciences of the Union of German Academies of Science and Humanities (acatech), Prof. Reiner Kopp, informed the participants about the meeting on engineering education that was held in Munich, Germany, on February 7, 2006, while the HATZ Delegation informed the attendees about our participation at the 7th WFEO World Congress on Engineering Education "Mobility of Engineers", which took place in Budapest, Hungary, on March 4-8, 2006, whereupon a declaration has been brought forth, addressing not only the problem of mobility, but also the immediate interest in engineering profession in general.

A special debate dealt with the next period and providing the funds for the IST Prize, which is not being supported enough by the EU. Therefore the efforts are being made that the issue of financing this activity be redirected to directly interested beneficiaries and information technology producers. During this year it will be necessary to proceed with communication with the EU in finding some meeting points as well as the place of the Euro-CASE in the future EU science and technology programs.

The conception of the Joint Research Center has also been discussed. There are various suggestions in that direction – from a unique Joint Research Institute, a kind of European MIT (which brings about question where would it be located), to the suggestion that a strong co-coordinating body with specialized cores is required in each member of the EU. In that part there is no unique stand and it is expected that the EU should make the final decision on this issue in the next period.

At the Agenda end the HATZ Delegation presented to all delegations the program and meaning of "2006 – The

Year of Nikola Tesla in Croatia", and the conception of the International Scientific and Professional Meeting "The Life and Work of Nikola Tesla" that was being organized under the auspices of the Croatian Parliament. On that occasion a proposal was made that the Euro-CASE accepts technical co-sponsorship over the Meeting. During the discussion the suggestion was deemed appropriate and HATZ activities were supported. The Euro-CASE accepted to technically co-sponsor the Tesla Meeting, and the President of the Euro-CASE Board Ben Veltman, Ph. D., has expressed his wish to attend the ceremony in Zagreb.

It was confirmed that the next Euro-CASE Board Meeting will be on September 27, 2006 in Bern, Switzerland, on the occasion of 21st Anniversary of the Swiss Academy of Engineering.

After the Euro-CASE Board Meeting was concluded, at 3:00 pm the Croatian Delegation attended the meeting with the President of the Austrian Academy of Sciences, Prof. H. Mang, Ph. D. The meeting has been arranged earlier by HATZ. On behalf of the HATZ we presented a gift to Prof. Mang, the book "Five Centuries of Maps and Charts of Croatia" by authors: Drago Novak, Ph. D., Prof. Miljenko Lapaine, Ph. D. and Dubravka Mlinarić, Ph. D., published by Školska knjiga 2005, and "Annuals 2004 and 2005 of the HATZ" as well as our English bulletin "Engineering Power". Prof. Mang presented a gift for the HATZ Library in Zagreb, the "Annual 2002/2003 of the Austrian Academy of Sciences" as well as a publication issued in 1997 on the occasion of the 150th Anniversary of the Austrian Academy of Sciences. After that we informed Prof. Mang with the activities on the organization of the Tesla Meeting.

As Austria doesn't have an organized academy of engineering, and the higher education has been organized by universities, while the entire system of science has been conducted through the Austrian Academy of Science, the role of the Academy is substantially different than in Croatia. According to the statement of the Academy President, Prof. Mang, they are involved in major investments in building of an institute of biotechnology, nanotechnology and high technology in general. Prof. Mang was very pleased by collaboration with Croatia, expressed his special support to HAZU President being a Member of the Honorary Committee of the Tesla Meeting, which points to a close co-operation of these two institutions in Croatia.

Prof. Mang fully supported our wish to render an appropriate meaning to Tesla in this region, and was especially glad to hear that Prof. K. Richter, Ph.D., has been appointed Honorary Member of the HATZ from Austria, and invited and accepted to participate as a plenary lecturer at the Tesla Meeting in Zagreb on June 28-29, 2006.

HATZ delegates  
Zlatko Kniewald, Jasna Kniewald

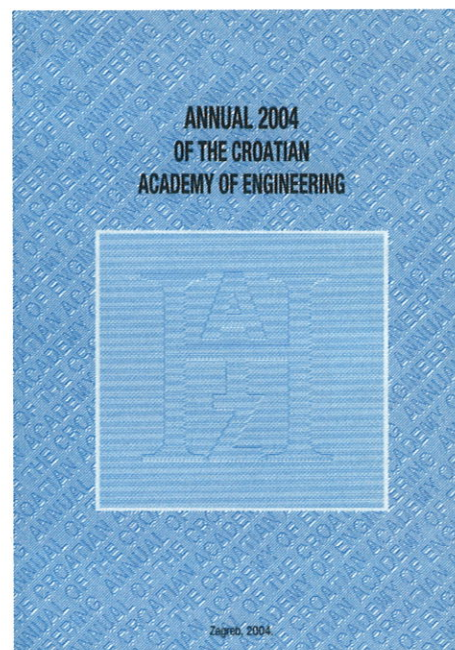
## Inclusion of the Annual 2004 of the Croatian Academy of Engineering into ISI Proceedings indices

A notice has arrived from Thomson Scientific, 3501 Market Street, Philadelphia, PA 19104, USA, ([www.thomsonscientific.com](http://www.thomsonscientific.com)), dated May 09, 2006, that the HATZ publication "Annual 2004 of the Croatian Academy of Engineering" has been selected for refereeing in following documentation databases:

**M** Index to Scientific & Technological Proceedings (ISTP/ISI Proceedings)

**IT** Index to Scientific & Technological Proceedings (ISTP CDROM version/ISI Proceedings)

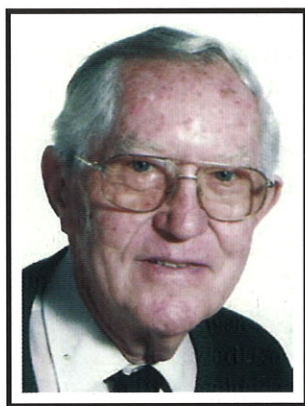
Inclusion in the mentioned databases is, no doubt, a success for our publishing activity.



In memoriam

## Academician Dragutin Fleš

(Vukovar, August 1, 1921 – Zagreb, June 13, 2005)



On June 16, 2005, at Mirogoj Cemetery we have had a farewell from the Academician Dragutin Fleš, a great scientist, counselor and friend. He was born August 1, 1921 in Vukovar. He finished elementary and high school in Zemun, and in 1941 he entered Chemical Department of the Technical Faculty, University of Zagreb, where he graduated

in 1946. The same year he began to work in Pliva, a drug factory in Zagreb. He obtained Ph.D. degree in 1952, under the supervision of Professor Krešimir Balenović, from the Faculty of Natural Sciences, University of Zagreb, in the area of organic chemistry. He began to act in science very

early, and in time it became his life path fulfilled with joy of discovery of scientific truths.

In 1981 he was elected Associate Member of the Croatian Academy of Sciences and Arts (HAZU), in 1991 Full Member, while from 1997-2003 he was Secretary of the Department of Technical Sciences. In 1998 he was elected Honorary Member of the Croatian Academy of Engineering (HATZ).

Academician D. Fleš obtained many recognitions and awards for his scientific achievements, so in 1978 he was awarded Ruđer Bošković Prize, in 1982 Republic Award for Technical Culture for Important Inventive Activity, and in 1988 he received a Life Achievement Award.

I am convinced that we all, numerous direct and indirect collaborators, friends and associates, shall remember D. Fleš for long, and encounter the scientific legacy of this great scientist, man and friend.

Zvonimir Janović

# The frequency of visits to the web pages of the Croatian Academy of Engineering in the period October, 2005-May, 2006

The web pages of the Croatian Academy of Engineering are available at the URL address: <http://www.hatz.hr>. From September 15, 2005, the HATZ web pages are located at the new server [croat.hatz.hr](http://croat.hatz.hr) (IP address: 193.198.188.3). The server provides statistics of the frequency of visits and use of the pages, and on the link: <http://www.hatz.hr/webalizer> those statistics are available in form of graphs and tables. The graphs and tables used in this article were downloaded from these pages on May 23, 2006.

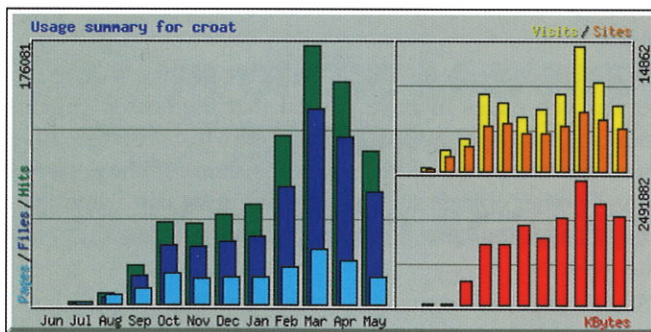


Figure 1. Graph showing the use of the pages [www.hatz.hr](http://www.hatz.hr) during the past year

Pregled po mjesecima										
Mjesec	Dnevni prosjek				Ukupno u mjesecu					
	Hits	Files	Pages	Visits	Sites	K-Bytes	Visits	Pages	Files	Hits
May 2006	4538	3333	817	340	5121	1767657	7832	18794	76670	104390
Apr 2006	5053	3800	992	353	6084	2031803	10608	29785	114005	151592
Mar 2006	5680	4297	1230	479	7118	2491882	14862	38138	133210	176081
Feb 2006	4097	2856	929	329	5444	1752831	9231	26021	79990	114740
Jan 2006	2194	1503	602	238	4503	1339393	7381	18681	46593	68033
Dec 2005	1982	1376	603	208	4474	1600881	6452	18705	42675	61450
Nov 2005	1841	1307	580	269	5754	1204284	8078	17409	39216	55251
Oct 2005	1810	1310	696	295	5385	1209785	9155	21594	40636	56113
Sep 2005	880	636	362	127	3030	483037	3813	10866	19105	26411
Aug 2005	226	140	215	80	1798	13655	2483	6687	4362	7016
Jul 2005	233	137	225	78	289	1631	313	902	550	935
<b>Ukupno</b>						<b>13896839</b>	<b>80208</b>	<b>207582</b>	<b>597012</b>	<b>822012</b>

Table 1. Numerical data by months and categories

The graph presented in Figure 1 briefly and pictorially shows the usage of the pages [www.hatz.hr](http://www.hatz.hr). Along with this graph data from the Table 1 may also be used for numerical amounts explanation. To facilitate the interpretation, it is necessary to define the terms that occur in the data.

**Hits** are a total number of demands to server in a certain period (month, day, hour, etc.).

**Files** represent a total number of demands that have resulted in sending of data to the user by the server. However, all demands do not result in sending of data, for instance, the response to a non-existing page 404-Not Found or response to the pages that have already been saved in the auxiliary memory (cache) of the search engine do not result in sending of data from the server.

**Note:** If we analyze the difference between hits and files, we can reach a rough estimation of regular visitors, because the higher was the difference between these two numbers, the greater is the number of visitors that have already visited the pages, i. e. their pages exist in the auxiliary memory (cache).

**Sites** represent a number of unique IP addresses/computers that have been sending the hits to the server. We should be careful in interpreting this data, because many users can approach from a single IP address, just as it is possible that one user approaches from many different IP addresses. This data should be considered as rough estimation.

**Visits** occur when certain distant computer hits the page for the first time. All until a single computer sends hits within a given period (most often it is 30 minutes), this will be shown as a single visit. Only page hits (but not pictures, graphics, etc.) are counted for visits statistics.

**Pages** are those URLs that relate to complete pages, and not their parts (graphical or sound records, etc.). This is particularly applied to URLs with extensions such as **.htm**, **.html** and **.cgi**.

**KByte** (KB) amounts 1024 Bytes. This data shows the quantity of data transferred between the server and the computers that have sent the hits.

(Source: [http://www.mrunix.net/webalizer/webalizer\\_help.html](http://www.mrunix.net/webalizer/webalizer_help.html))

In July and August, 2005 the server had not even been publicly available. It happened just by mid-September, 2005. From February, 2006 we noticed a significant increase in HATZ web pages usage, reaching its peak in March, 2006.

In 2006 the average daily number of **visits** to HATZ web pages is about **350**.

The number of access points to HATZ web pages is approximately constant in the period October, 2005-May, 2006. This could be interpreted by the fact that there is a certain number of regular users that visit the pages more or less regularly. The increase in this number could be interpreted by occurrence of new users that have not been visiting the pages until recently.

If we click on a certain month, we can obtain a more detailed overview of the pages usage within a month. These are data about pages usage by days and by day time as well as data about the most visited pages, the entering pages per visit, the ending pages per visit, the search engines used per visit, etc.

For example, we can make the overview of pages usage per days. The graph of daily usage of the pages in May, 2006 is shown in Figure 2.

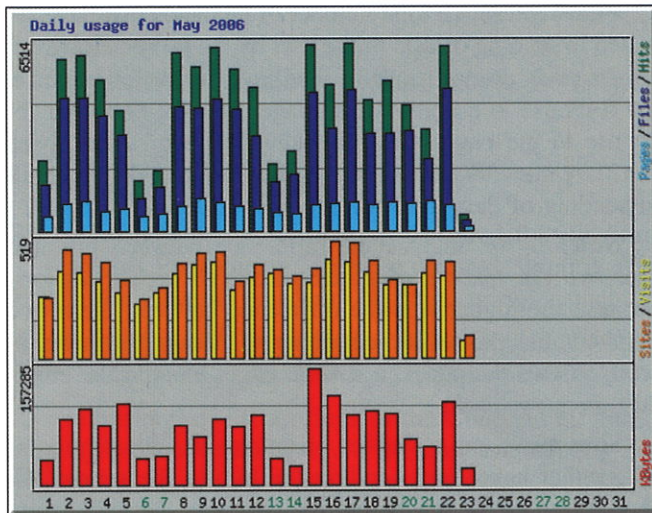


Figure 2. Daily usage of the pages *www.hatz.hr* in May 2006.

We can easily see in Figure 2 that the pages usage had decreased during weekends in comparison to working days.

It is also possible to make the overview of pages usage for a certain month during certain daily hours. Such graph for May, 2006 is shown in Figure 3.

From Figure 3 we can see that the pages usage is at its peak in the period 09:00-16:00 hours, while it reaches the

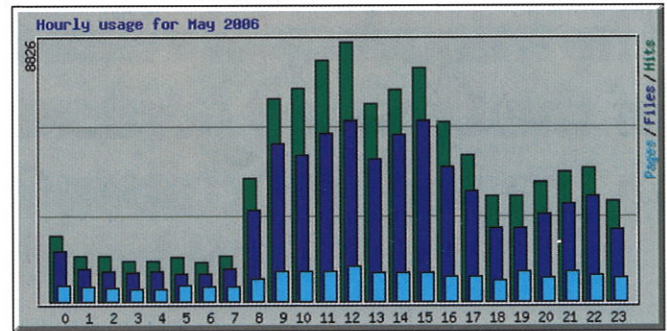


Figure 3. Usage of the pages *www.hatz.hr* in May, 2006 during daily hours

bottom in the period 00:00-07:00 hours. Most users use the pages during their working hours, while a part of the users use the pages also in the period 17:00-23:00 hours, so we assume that they visit the pages from home.

At the bottom of the monthly report there is also a table with 30 most often referrers. This statistics might be applied for the analysis of the most visited content of the pages.

Referrers are those URLs that have led the user to the server web pages or have caused that the search engines make certain hits towards the server. Most referrers have been realized by the server's pages, because if one page has links to other objects such as graphics, a hit that relates to a single page shall also produce a greater number of hits for this referrer.

(Source: [http://www.mrunix.net/webalizer/webalizer\\_help.html](http://www.mrunix.net/webalizer/webalizer_help.html))

From such list related to May, 2006 we can conclude that the most visited were the pages on Nikola Tesla.

Dražen Tutić  
Webmaster of the HATZ web pages

## Marie Curie Workshop 2006 in the Republic of Croatia and the Republic of Serbia

On October 7-11, 2006 the Croatian Academy of Engineering is organizing a Marie Curie Workshop 2006. in co-operation with the Ministry of Science, Education and Sports of the Republic of Croatia, Ministry of Science and Environmental Protection of the Republic of Serbia, Croatian Academy of Engineering, Serbian Academy of Sciences and Arts and the Directorate General for Research of the European Commission.

The Workshop is expected to be attended by about 100 Marie Curie Fellows, including 25 participants from Croatia and 25 from Serbia. The first part of the Workshop will take place in Zagreb, October 7-9, 2006 at the Faculty of Electrical Engineering and Computing, University of Zagreb, while the second part of the Workshop will be held in Belgrade, Serbia, October 9-11, 2006, at the Faculty of Civil Engineering, University of Belgrade. The detailed information about the Workshop and registration is available at HATZ web pages: [www.hatz.hr/MarieCurie2006](http://www.hatz.hr/MarieCurie2006).

In accordance with the Article 37 of the Statute of the Croatian Academy of Engineering and the Article 11 of the Bylaws on Awards, the Croatian Academy of Engineering declares.

## **The Contest for the Awards by the Croatian Academy of Engineering for 2006**

The Academy will grant:

- one Life Achievement Award “Power of Knowledge”;
- up to five Annual Awards “Rikard Podhorsky”;
- up to five Young Investigator Awards “Vera Johanides”.

Life Achievement Award “Power of Knowledge” is to be granted to a distinguished scientist for his entire scientific and research work in the area of technical or biotechnical sciences and a long-term contribution to the advancement of the profession, with particular emphasis to the possible application of the results of research work.

Annual Award “Rikard Podhorsky” is to be granted to the outstanding scientist for the especially valuable scientific or professional achievement during previous three years, with application in the economy.

Award to the Young Scientist “Vera Johanides” is to be granted to the scientist not older than 35 years of age (on the day of closing of the Contest), who has achieved a recognizable scientific advancement and has notably scientifically contributed in the area of his research during the last five years, with particular emphasis to the applicability of results achieved.

Awards are granted to the citizens of Croatia.

Nominations for the Awards may be proposed by universities, faculties, scientific and research institutes, Croatian Academy of Sciences and Arts, departments of the Croatian Academy of Engineering and a group of ten scientists members of the HATZ.

Detailed information and application forms may be obtained at the address:  
[http://www.hatz.hr/hrv/pravilnik\\_nagrade.htm](http://www.hatz.hr/hrv/pravilnik_nagrade.htm)

Nominations are to be proposed or sent by mail until October 31, 2006 to the address:

Croatian Academy of Engineering  
28 Kačić Street, P. O. Box 59,  
HR-10001 ZAGREB, CROATIA

Celebration of the 150<sup>th</sup> anniversary of the birth of Nikola Tesla



## Symposium "Tesla in Croatia"

Under the patronage of Mr. Stjepan Mesić  
President of the Republic of Croatia



UNESCO House, Cinema Hall, 7 place de Fontenoy, Paris 7<sup>e</sup>

Celebration of the 150<sup>th</sup> anniversary of the birth of Nikola Tesla

Under the patronage of Mr. Stjepan Mesić, President of the Republic of Croatia

Koichiro Matsuura  
Director-General of the United  
Nations Educational, Scientific  
and Cultural Organisation

Dragan Primorac  
Minister of Science,  
Education and Sports  
of the Republic of Croatia

Božidar Gagro  
Ambassador, Permanent Delegate  
of the Republic of Croatia  
to UNESCO

Have the pleasure to invite you to the opening ceremony of the Symposium  
"Tesla in Croatia"

Wednesday, September 13<sup>th</sup> 2006, at 9.30 a.m.  
UNESCO House, Cinema Hall, 7 place de Fontenoy, Paris 7<sup>e</sup>

### PROGRAMME

9:00 - 9:30	Registration of the participants
9:30 - 10:00	Welcome words and opening of the Symposium
10:00 - 10:15	Prof. Branka Zovko-Cihlar, Ph.D. (Croatia): FROM TESLA'S DISCOVERIES IN THE FIELDS OF RADIOCOMMUNICATIONS TO DIGITAL BROADCASTING FOR MULTIMEDIA SERVICES
10:15 - 10:30	Prof. Kurt R. Richter, Ph.D. (Austria): TESLA'S TIME AND APPLICATION OF HIS ACHIEVEMENTS IN THE FUTURE
10:30 - 10:45	Gordana Kovačević, M.Sc. (Croatia): ERICSSON NIKOLA TESLA: FOLLOWING TESLA'S VISION
10:45 - 11:00	Coffee break
11:00 - 11:15	Prof. Stjepan Car, Ph.D. (Croatia): NIKOLA TESLA AND THE KONČAR GROUP Inc.
11:15 - 11:30	Ivica Toljan, M.Sc. (Croatia): DEVELOPMENT AND CONNECTING OF MAJOR ELECTRICAL POWER SYSTEMS
11:30 - 11:45	Assist. Prof. Darko Huljenić, Ph.D. (Croatia): TESLA THROUGH THE COMMUNICATION'S VISION
11:45 - 12:00	Igor Mandić (Croatia): TESLA'S GALAXY
12:00 - 12:20	MOVIE ABOUT NIKOLA TESLA - Production by HEP
12:20 - 12:30	Closing remarks
12:30 - 13:00	Visit of the exhibition dedicated to Nikola Tesla.

The program, conducted by Mrs. Helga Vlahović Brnobić, will be in English only.

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