



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

Andrija Mohorovičić – the great Croatian Scientist

Invited lecture on the occasion of the 150th anniversary of his birth presented during the Assembly of the Croatian Academy of Engineering (HATZ) at its 22nd meeting held on March 09, 2007.

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Andrija Mohorovičić, geophysicist of the world renown and one of the greatest Croatian scientists of all times, was born 150 years ago, on 23 January 1857 in Volosko near Rijeka, Croatia. In 1875 he enrolled into the Prague University to study mathematics and physics. After graduation, he taught at high schools in Zagreb and Osijek, and on the Nautical School in Bakar. In the year 1892 he became director of the Meteorological Observatory in Zagreb. The following year Mohorovičić obtained the doctorate of philosophy at the Zagreb University, where he was later elected a titular associate university professor to teach courses on geophysics and astronomy. He became

the corresponding member of the Academy in 1893, and the full member in 1898. Mohorovičić retired in 1922.

In the beginning of his career, Mohorovičić is engaged in meteorology. His scientific interests lay in the explanation of various meteorological phenomena – atmospheric dynamics and observations of rare events (tornado near Novska, whirlwind near Čazma). He also studied the climate of Zagreb, and the decay of temperature with height. As only recently re-discovered, Mohorovičić was probably the first to describe atmospheric rotors with the horizontal axis, which he observed during bora-wind episodes at the northern Adriatic. Mohorovičić is also recognized for the unification of the meteorological service in Croatia and Slavonia, and was the first in Croatia to publish weather forecasts in daily papers.

About the turn of the centuries Mohorovičić's scientific interest turned almost exclusively to seismology. The meticulous analyses of the seismograms of the Kupa Valley earthquake of 8 October 1909 enabled him to prove the existence of the crust-mantle boundary, which later became known as the Mohorovičić discontinuity. This unveiling of one of the big secrets of the deep Earth's interior places him among the founding fathers of the modern seismology. The discovery – recognized as one of the milestones of science in the beginning of the 20th century – is also the *most important scientific contribution ever published in a Croatian journal*. He founded the Zagreb seismological station in 1906 and equipped it with the best instruments of the time, thus placing it on the level with the most excellent observatories in the world.

Andrija Mohorovičić was a very careful, pedantic and diligent scientist, who enjoyed to search for explanations of observations in theory, but never favoured theory over observations. He published about 45 papers, of which he was always the only

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author. This speaks not of his vanity, but rather of hard conditions he had to work in, resulting in a persistent shortage of co-workers. As an exceptional organizer, he is today recognized as the founder of the Zagreb seismological school, the Croatian seismological and meteorological surveys, and of the public time service. Owing to the tradition he initiated, University of Zagreb is among the few in the world awarding a degree in seismology on the undergraduate level. His thoughts and ideas were truly visionary, often decades before his time (harvesting the wind energy, hail suppression, models of the Earth and atmosphere, deep earthquakes, earthquake-resistant building design...). In

1970 one of the craters on the dark side of the Moon was named after him, as was the asteroid No. 8422 in 1996. Since recently, the crust-mantle boundary on the Moon as well as on the Mars is also known as the Mohorovičić discontinuity.

Andrija Mohorovičić, as only very few Croatian scientists of the international reputation ever, made his whole career in his homeland. He is undoubtedly one of the greatest Croatian scientists ever, and the world geophysical community considers him as one of the great men of seismology of the 20th century.

New Members of HATZ

At the 22nd Annual (Elective) Assembly of the Croatian Academy of Engineering held on March 9, 2007 following members were elected or promoted:

Honorary Members:

- Prof. Dragan Primorac, Ph.D.;
- Prof. Kemo Sokolija, Ph.D. (Republic of Bosnia and Herzegovina).

Correspondent Members:

- Prof. Melita Ahić-Đokić, Ph.D. (Republic of Bosnia and Herzegovina);
- Prof. Pavol Podhradsky (Slovakia).

Members Amici:

- Prof. Damir Boras, Ph.D.;
- Assist. Prof. Alfredo Višković, Ph.D.

Department of Systems and Cybernetics:

- Prof. Bojan Jerbić, Ph.D. – Collaborating Member.

Department of Information Systems:

- Prof. Vedran Mornar, Ph.D. – Full Member;
- Prof. Mario Kovač, Ph.D. – Associate Member;
- Prof. Krešimir Fertalj, Ph.D. and Hrvoje Mlinarić, Ph.D., Senior Assistant – Collaborating Members.

Department of Communication Systems:

- Prof. Sonja Grgić, Ph.D. – Associate Member;
- Assist. Prof. Winton Afrić, Ph.D. – Collaborating Member.

Department of Power Systems:

- Assist. Prof. Goran Granić, Ph.D. – Associate Member.

Department of Transport:

- Prof. Mario Anžek, Ph.D. – Collaborating Member.

Department of Mechanical Engineering and Naval Architecture:

- Prof. Zdravko Virag, Ph.D. – Full Member.

Department of Electrical Engineering and Electronics:

- Prof. Zdravko Valter, Ph.D. and Prof. Zdravko Hebel, Ph.D. – Full Members;
- Prof. Sead Berberović, Ph.D. – Associate Member;
- Prof. Ivica Pavić, Ph.D. – Collaborating Member.

Department of Bioprocess Engineering:

- Prof. Jagoda Šušković, Ph.D. – Associate Member.

Department of Mining and Metallurgy:

- Prof. Ante Markotić, Ph.D. – Full Member.

Department of Textile Technology:

- Prof. Zvonko Dragičević, Ph.D. and Prof. Darko Ujević, Ph.D. – Collaborating Members.

Nuclear Power Plants and their Potential Significance for Croatia

Invited lecture presented during the Assembly of the Croatian Academy of Engineering (HATZ) at its 22nd meeting held on March 09, 2007.

Professor Emeritus Danilo Feretić, Ph. D.

Faculty of Electrical Engineering and Computing, University of Zagreb, Member Emeritus of the Croatian Academy of Engineering (HATZ)

During the last 30 years nuclear power plants have become economically and ecologically acceptable. Today there are 440 nuclear power plants of 300 GW total power, with energy production of 2600 TWh or 16% of total electrical energy consumption in the world. For years now, many European countries have been meeting significant share of their energy production by nuclear power plants (i.e. current share of nuclear power plants in total energy production in France, Belgium, Sweden, Switzerland and Germany amount to 78%, 55%, 52%, 50% and 32%, respectively).

A number of countries today show interest in building nuclear power plants, especially countries at the Far East (China, India), USA and Russia. This interest is motivated by the fact that nuclear power plants are not only the most economical solution for electricity production, but are at the same time the most efficient power plants for greenhouse gasses emission reduction as well.

Nuclear power plants that are in operation nowadays belong to the second generation of nuclear reactors. In the last decade the third generation of nuclear reactors has been developed, and few years ago the development of the fourth generation has been announced. While the third generation projects have mostly been focused towards safety improvements of second generation of reactors, the fourth generation projects (which are expected to be implemented after 2030) are focused on resolving the essential questions regarding applying fission energetics in long term (total utilization of nuclear fuel energy potential, minimization of nuclear waste and hydrogen production).

According to the middle scenarios, long-term development projections of nuclear energetics in the world predict the increase of electricity production in nuclear power plants at about 12000 TWh by the year 2050, which would be sufficient for one third of estimated electricity consumption.

The existing analysis of Croatian electricity production predicts that by 2020 electricity consumption, with the modest consumption growth rate, could reach 21-23 TWh.



This would mean that during the following 13-14 years there would be demand for additional 6 TWh of electrical energy (which equals to production about one of 1000 MW power plant). Additionally, during the same timeline it would be necessary to replace the production from outdated liquid fuels and coal thermal power plants (locations in Sisak, Rijeka, Zagreb and Plomin), with total power of more than 1000 MW, which in total results in approximately 2000 MW of new power plants needed.

At this moment it is very hard to answer the question by which power plant type could electricity demand be reliably and economically met before the end of next decade, and even harder if the longer term is considered. Various technologies are available. There is natural gas the availability of which and especially reasonable price are very questionable. Then there is coal the application of which has become more difficult due to unacceptable emissions, in particular greenhouse gasses, and there are also renewable energy sources (particularly wind), the application of which is complicated by the stochastic nature of energy production (which limits the share of renewables in electricity production to few percent only) and by the high prices. In order to meet the aforementioned level of power from new power plants in Croatia, the vision of possible solution exists for only about one half of the requirements, while the rest is without the proposed solution. For that reason, during the next decade it would be opportune to consider the possibility of building a nuclear power plant. Analyses have shown that this option could also offer attractive solution for electricity production from the economical point of view.

The HATZ Awards for 2006

The Assembly of the Croatian Academy of Engineering at its 22nd meeting held on March 9, 2007 has decided upon the following laureates:

Life Award **The Power of Knowledge** was given to **Professor Zvonimir Janović, Ph.D.** for his life long achievement in scientific work in the area of technical sciences and long-term contribution to the advancement of the profession, with particular accent to the application of the results of his scientific work.



Annual Award **Rikard Podhorsky** was given to **Assistant Professor Alfredo Višković, Ph.D.** for exceptionally valuable scientific achievement attained during the last three years, with application in the economy.



Annual Award **Rikard Podhorsky** was given to **Professor Srećko Tomas, Ph.D.** for exceptionally valuable scientific achievement attained during the last three years, with application in the economy.



Annual Award **Rikard Podhorsky** was given to **Professor Jagoda Šušković, Ph.D.** for exceptionally valuable scientific achievement attained during the last three years, with application in the economy.



Annual Award **Rikard Podhorsky** was given to **Professor Sonja Grgić, Ph.D.** for exceptionally valuable scientific achievement attained during the last three years, with application in the economy.



Annual Award **Rikard Podhorsky** was given to **Hinko Wolf, Ph.D.** for exceptionally valuable scientific achievement attained during the last three years, with application in the economy.



Award to the Young Scientist **Vera Johanides** was given to **Davorin Ambruš, M.Sc.** for achieved personal scientific advancement and recognized scientific activity in the area of technical sciences during the last five years.



Award to the Young Scientist **Vera Johanides** was given to **Assistant Professor Draženka Komes, Ph.D.** for achieved personal scientific advancement and recognized scientific activity in the area of biotechnical sciences during the last five years.



Award to the Young Scientist **Vera Johanides** was given to **Tomislav Pribanić, Ph.D.** for achieved personal scientific advancement and recognized scientific activity in the area of technical sciences during the last five years.



Award to the Young Scientist **Vera Johanides** was given to **Assistant Professor Tomislav Suligoj, Ph.D.** for achieved personal scientific advancement and recognized scientific activity in the area of technical sciences during the last five years.



Award to the Young Scientist **Vera Johanides** was given to **Assistant Professor Bruno Zelić, Ph.D.** for achieved personal scientific advancement and recognized scientific activity in the area of biotechnical sciences during the last five years.



Manors and Villas – Cultural Heritage as a Generator of Economic Development

International Conference, Varaždin, October 13-14 2006

This was the second international conference on the respective subject which took part within the framework of the international project *Villas, Stately Homes and Castles – Compatible Use, Valorisation and Creative Management, 2004-2006*, and within the framework of the scientific research project *Urbanistic and Garden Heritage of Croatia as a Part of European Culture* of the Faculty of Architecture of the University of Zagreb.

General goal of the project has been to initiate revitalisation of manors and villas representing an important cultural heritage. They are to be viewed not as a static heritage requiring continuous investment, but as an important cultural value able to contribute to the economic development of a particular region.

A website on Croatian castles and manors (www.dvorci.hr) has been promoted on the conference, while conclusions from this and the previous meeting are accessible through the HATZ web.



Energy and Environment 2006

International Congress, Opatija, October 25-27, 2006

This congress was organised by the Faculty of Engineering, University of Rijeka, Croatian Solar Energy Association Rijeka and the Faculty of Mechanical Engineering, University of Ljubljana, Slovenia, and under the patronage of the Ministry of Environmental Protection, Physical Planning and Construction, Ministry of Science, Education and Sports, Ministry of Economy, Labour and Entrepreneurship of the Republic of Croatia and the Croatian Academy of Engineering.

This was the 20th traditional congress in a row (congresses held bi-annually in Opatija) with the main topic *Energy and Environmental Protection in Croatia in the Process of Joining to the European Union*. There were 80 scientific presentations. The congress have had an international character with participants coming from neighbouring European countries. The final program and concluding remarks can be found at: www.riteh.hr/ee2006/.

Međunarodni kongres / International Congress

ENERGIJA I OKOLIŠ 2006
ENERGY AND THE ENVIRONMENT 2006

October 25-27, 2006
Opatija, Croatia

Pokrovitelji / Under the patronage of:

- Ministarstvo zaštite okoliša, prostornog uređenja i graditeljstva
Ministry of Environmental Protection, Physical Planning and Construction
- Ministarstvo znanosti, obrazovanja i športa Republike Hrvatske
Ministry of Science, Education and Sport of the Republic of Croatia
- Ministarstvo gospodarstva, rada i poduzetništva
Ministry of Economy, Labour and Entrepreneurship

Organizatori / Organised by:

- Tehnički fakultet Sveučilišta u Rijeci
Faculty of Engineering University of Rijeka
- Hrvatski savez za sunčevu energiju Rijeka
Croatian Solar Energy Association Rijeka
- Univerza v Ljubljani, Fakulteta za strojništvo, Slovenija
University of Ljubljana, Faculty of Mech. Engineering, Slovenia

U suradnji s / In cooperation with:

- Energetskim institutom "Hrvoje Požar", Zagreb
Energy Institute "Hrvoje Požar", Zagreb
- Hrvatskom akademijom tehničkih znanosti, Zagreb
Croatian Academy of Engineering, Zagreb
- Zajednicom obnovljivih izvora energije Hrvatske gospodarske komore, Zagreb
Renewable Energy Sources Affiliation of Croatian Chamber of Economy, Zagreb
- Institutom "Ruđer Bošković", Zagreb
Institute "Ruđer Bošković", Zagreb

Energy Policy Scenarios to 2050 World – Europe – Croatia

HED (Hrvatsko energetska društvo, Croatian Energy Association) annually for 15th time organizes its Forum, with different up to date topic important for energy sector.

Papers and presentations help to introduce experts and general public with problems, trends and experiences based from other countries.

Energy perspectives occupy energy community in whole, since World Energy Council started the global study “Energy policy until 2050” HED chose same topic concentrated on Croatia as a part of Europe and Europe as a part of the world progression.

The following topics were discussed at the 15th Forum:

- Energy consumption and energy efficiency
- Reserves, production and transmission of energy
- Renewable energy sources
- Emerging technologies in energy production and transformation
- Environmental protection and development constraints
- Prices, investments, and development of energy markets
- Political, technological, and financial assumptions and constraints for development

Gathered were greeted by dr.sc. Goran Granić, the president of HED. He reminded HED started with its work in spring of 1992. and soon became the member of World Energy Council.

Dr.sc. Goran Granić mentioned how Forum every year becomes more and more internationally involved. At 15th Forum half of presentations were made by foreign experts.

With desire to make Forum’s work constructive and successful dr.sc. Goran Granić expressed special gratitude to sponsors, to Croatian and international experts who have helped Forum happen.

There were around 200 experts attending Forum and participating in its work.

Presentations have followed according to earlier setup working schedule.



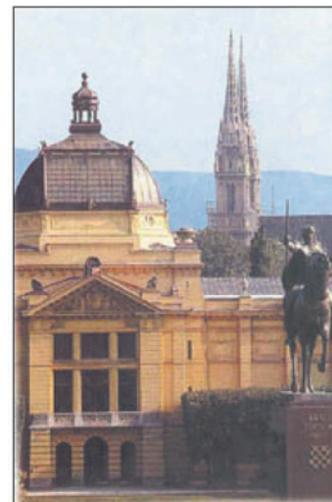
Gradsko poglavarstvo
Grada Zagreba
i
Hrvatski inženjerski savez



ZAGREB 2008

Pozivaju autore i sudionike
na konferenciju

Razvitak Zagreba



Zagreb
1.-2. veljače 2008.

Suorganizatori:



www.grad.hr/zagreb

Tiskarstvo 07

International Scientific Meeting, Stubičke Toplice, February 15 and 16, 2007

Changes in printing technology (tiskarstvo, in Croatian) were discussed by academics and scientists from Croatia, Austria, Spain, Germany and Greece. There were 60 professionals from Croatia, Slovenia and Bosnia and Herzegovina attending. Motto of the conference was “Show me the Future” and it addressed modernisation and new trends in this rapidly changing field. The meeting was organized by the Center for Graphic Engineering of the

Croatian Academy of Engineering and supported by the Ministry of Science, Education and Sports of the Republic of Croatia, “Vjesnik”, “Europapress Holding” and “Narodne novine” publishing houses. The information on the program of this fruitful meeting are accessible at: <http://www.ziljak.hr/tiskarstvo/tiskarstvo07/> while its results shall be presented in the book “Tiskarstvo 07” (ISBN 978-953-7064-06-8) to appear soon.

XXth Croatian Meeting of Chemistry Professionals and Chemical Engineers

Zagreb, February 26 – March 1 2007.

This jubiliary meeting, devoted to two Nobel laureates of Croatian origin: Lavoslav Ružička and Vladimir Prelog, has been attended by 439 participants. There were a number of notables at the opening ceremony presenting their wellcome address like: Stjepan Mesić, President of the Republic of Croatia, Vladimir Šeks, President of the Croatian Parliament, Professor Dragan Primorac, Ph.D., Minister for Science, Education and Sports of the Republic of Croatia, Professor Aleksa Bjeliš, Ph.D., Rector of the University of Zagreb, Professor Zlatko Kniewald, Ph.D., President of the Croatian Academy of Engineering, Professor Jure Radić, Ph.D., President of the Croatian Association of Engineers and Full Member of the Croatian Academy of Engineering, Tomislav Dragičević, Ph.D., President of the INA Management Board, among others.

There were 16 plenary lectures, 4 among them connected thematically with the chemistry of Ružička and Prelog, and 13 invited lectures. Plenary lectures were of a very high level since presenters were top world scientists in their particular subfields. There were 271 poster presentations, well visited and accompanied by fruitful discussions. For the first time, traditional division in sections at the meeting was abandoned in favor of interdisciplinarity. Workshop for high school chemistry teachers was organized as well.

Media coverage of this eminent meeting was very good including web sites of the President of the Republic of Croatia, of the Croatian Parliament, as well as of the Organisation for the Prohibition of Chemical Weapons (www.opcw.org) which was among the supporters of the meeting.


DAN ENERGIJE U HRVATSKOJ



ENERGETSKA BUDUĆNOST
U SVJETLU ODNOSA I
INTEGRACIJSKIH
PROCESA U EUROPI

16. FORUM

23. studeni 2007.

Zagreb, Hrvatska



Poziv autorima referata

TERMINSKI PLAN:

Prijava referata do 15. srpnja 2007. godine.

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Gotove referate treba poslati do 20. listopada 2007. godine u sjedište HED-a.

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Prof. dr. sc. Vladimir Mikuličić
Prof. dr. sc. Miljenko Sunić

Second Congress of Croatian Scientists from the Homeland and Abroad

Split, May 7 -10, 2007

The Congress organized by the Ministry of Science, Education and Sports of the Republic of Croatia was the successor of the First Congress held in Zagreb and Vukovar from November 15 -19, 2004. It was the extension of the efforts to realize the basic idea of the First Congress about the association of scientists from Croatia and Croatian scientists abroad. In the presence of the guests, hosts of the Congress and almost 500 participants, the Congress was ceremonially opened by the President of the Republic of Croatia, Dr.h.c. Vla-



dimir Šeks. 67 Croatian scientists from 17 countries out of which 15 from USA and 13 from Germany showed their interest and potentials which would be on disposal to our scientists in further scientific promotion of Croatia and in fostering bilateral cooperation.

The Congress was organized in five thematic units, namely: European and International Projects, Cooperation with Business Sector and Technology Projects, Development of Scientific Institutions, Strategic Framework for Development of Science until 2010 and Drawing of Media Attention to Science and Research, as well as in six sections according to scientific fields, namely: Natural Sciences, Technical Sciences, Biomedicine and Health, Social Sciences, Humanities and Biotechnology. 86 posters were presented at the Congress. Apart from the members of the HATZ in the organization of the Congress



also participated Prof. Dragan Primorac, Ph.D. as President of the Organizing Committee, Prof. Stjepan Risović, Ph.D. as Chairperson of the thematic unit Cooperation with Business Sector and Technology Projects, Prof. Darko Stipaničev, Ph.D. as Chairperson of the Technical Science Section, Prof. Ivica Stanković, Ph.D. (Sweden) and Prof. Zlatko Kniewald, Ph.D. as Chairperson of the section of Biotechnology from the homeland in collaboration with Prof. Zdenko Rengel from abroad (Australia).

In the course of the first day of the Congress and after the opening lecture of the Minister of Science, Education and Sports of the Republic of Croatia, Prof. Dragan Primorac, Ph.D. who rendered achieved results for the past three years, presentations of the Chairpersons of the sections and of the Chairpersons of thematic units, Economic Forum was held on which, together with managers of our leading industries, dr. Christian Ege, State Secretary of the Ministry of Economy and Labour of the Federal Province of Saarland, made a speech about the significance and possibilities of economic development in Croatia. Dr. C. Ege emphasized in particular the similarities of the Saarland Province and the Republic of Croatia in regional and population scales and the solutions by which in the past his

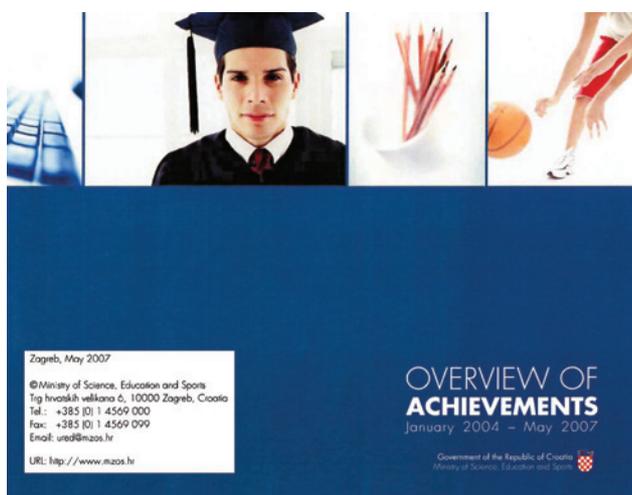


province made considerable improvements in economic growth as to other provinces in Germany. The second day the Congress resumed work in separate thematic units, several specific thematic discussions also took place such as “Protection of Intellectual Property” led by Prof. Zlatko Kniewald, Ph.D. and Prof. Davor Pavuna, Ph.D. within thematic unit of “Cooperation with Business Sector and Technology Projects”, whereas on the third day of the Congress a Plenary Session was held, conclusions were adopted and solemnly signed Joint Statement (herewith enclosed) about strategic directions of the development of science and technology in Croatia on the way to the full membership in the EU by which the Congress was closed. Organizers of the Congress, as well as young employees of MSES who had done a great job of preparations and logistics, provided the participants of the Congress with a lot of valuable printed material and thus showed that higher education and science in Croatia connected to our scientists and others in the world was able to fulfill all taken obligations and tasks with quality, successfully and on time.

More information about the activities and adopted documents can be found on the web pages of the HATZ.

Review on the Brochure “Survey of Achievements from January 2004 to April 2007”

edited by the Government of the Republic of Croatia, Ministry of Science, Education and Sports,
ISBN: 978-953-6569-30-4



During the Second Congress of Scientists from the Homeland and Abroad held in Split from May 7 to 10, 2007 the brochure “**Survey of Achievements from January 2004 to April 2007**” edited by the Government of the Republic of Croatia, **Ministry of Science, Education and Sports**, was presented and distributed to the participants. Minister, Prof. Dragan Primorac, Ph.D., held a speech in which he presented the achievements in the fields of science and education accompanied by a lot of data available in the above mentioned brochure.

The brochure consists of an introduction, 11 chapters, list of institutions and appendix. **Introduction** presents development strategy including the strategic aim up to 2010 of investing into education and science, salaries in the system of education and science, as well as the quality control system. **Chapter 1** gives information about the Ministry

and systems in its jurisdiction, while **Chapters 2 – 6** comprise pre-school, primary, secondary and high education, as well as lifetime learning. **Chapter 7** covers the fields of science and technology including development strategy of Croatian science and technology, project of the return of Croatian scientists from abroad into the Republic of Croatia, evaluation of scientific projects and organizations, information about BICRO d.o.o. and the foundation of the Croatian Institute of Technology – HIT d.o.o., as well as about the Institute for Computing Innovations. **Chapter 8** deals with essential theses of information society, and **Chapters 9 and 10** with sports and shared programs. International cooperation is elaborated in **Chapter 11** and encompasses participation in the EU Framework Program for Science, CARDS, PHARE (TEMPUS), COST and EUREKA programs, as well as participation in CEEPUS. It should be pointed out that in the brochure's **List of Institutions in the System of Education, Science and Technology, Sports and Information Society** at the page

123 there is a list of “**Important Scientific Organizations**” in which **The Croatian Academy of Engineering** is stated together with other 3 organizations (Croatian Academy of Sciences and Arts, Lexicographical Institute *Miroslav Krleža* and the Academy of Medical Sciences of Croatia). Croatian Academy of Sciences and Arts and Lexicographical Institute *Miroslav Krleža* are additionally described as “organizations of special significance to the Republic of Croatia” with respect to the direct financing procedure. By all means the nomination of the HATZ on the list of important scientific organizations of the Republic of Croatia is the acknowledgement and recognition for overall former activities of the HATZ and especially for the work of all members of the HATZ who contribute to the reputation of the Croatian Academy of Engineering and its contribution to the faster economic prosperity of Croatia based on knowledge and the use of modern technologies.

Engineers' Day was declared in Hungary

from May 3 to 5, 2007

The Hungarian Academy of Engineering together with other organizations of engineers in Hungary have taken over the initiative of introducing Engineers' Day to be regularly marked each first Saturday in May beginning with 2007. The idea has been fostered by Mr. Sandor Benko, Ph.D. (B.E.E.) from Hungary who is also the leader of a Dixiland orchestra the musicians of which are all engineers by profession and which has celebrated this year 50th anniversary of its musical activity. His orchestra is the best Dixiland orchestra in the world.

On the occasion of the opening of the conference “Engineers and the Environment”, together with the welcoming speech in the name of all the HATZ members, president of the HATZ has handed over to the president of the Hungarian Academy of Engineering, Prof. Janos Genzler, Ph.D., the HATZ Charter and a medal with the figure of Nikola Tesla made for the Year of Nikola Tesla by the Ministry of Science, Education and Sports of the Republic of Croatia.



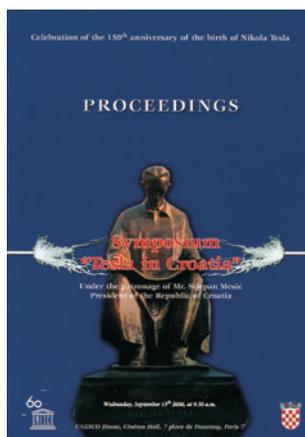
Activities of the Croatian Academy of Engineering with Respect to the Marking of the Year of Nikola Tesla

Scientific and professional meeting “The Life and Work of Nikola Tesla” was held in the Concert Hall “Vatroslav Lisinski”, Technical Museum Zagreb and the Ministry of Economy, Labour and Entrepreneurship of the Republic of Croatia from June 27-29, 2006. Technical organization was, among others, also under the auspices of IEEE.

ISBN 953-7076-09-1



ISBN 953-7076-10-5

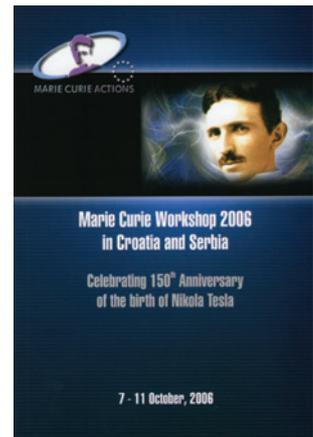


Symposium “Tesla in Croatia” which was co-organised by HATZ, the Ministry of Science, Education and Sports and the Ministry of Culture of the Republic of Croatia was held in the UNESCO in Paris on September 13, 2006.

“Marie Curie Workshop 2006” – Commemorating the 150th Anniversary of the Birth of Nikola Tesla has been organised in co-

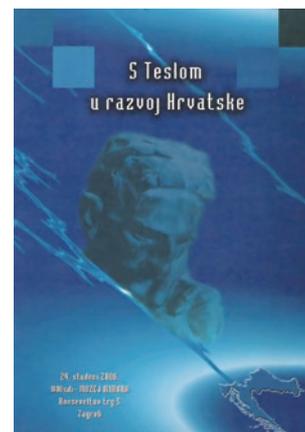
operation with the EU, the Ministry of Science, Education and Sports of the Republic of Croatia, and the Ministry of

Science and Environmental Protection of the Republic of Serbia. The goal of the workshop was to enable young scientists from particular EU countries, Croatia and Serbia, in mutual talks on science, to become familiar with the possibilities of collaboration, with the activities of 'Marie Curie' program and the preparation of common projects. Workshop was held in Zagreb and in



Belgrade with attending ministers, professor Dragan Primorac of Croatia, professor Aleksandar Popović of Serbia and professor Janez Potočnik of the EU.

On November 24, 2006 a meeting entitled “With Tesla to the Development of Croatia” was held at the Museum MIMARA with the goal not to bring conclusive documents on Tesla, but to present programs which, by applying



Tesla's ideas in the future, will be the motor of the technological development of Croatia.

Supporting Members of the HATZ in 2007 from the Fields of Science and Education

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 Faculty of Electrical Engineering and Computing, Zagreb
 Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split
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Faculty of Technology, Rijeka
 Polytechnic of Zagreb, Zagreb
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 Collegium Ragusinum – Polytechnic of Dubrovnik, Dubrovnik
 Polytechnic of Karlovac, Karlovac

Supporting Members of the HATZ in 2007 from the Fields of Industry and Economy

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 Brodarski institut d.o.o., Zagreb
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 Energy Institute Hrvoje Požar, Zagreb
 Croatian Telecommunications Agency, Zagreb
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 Croatian Association of Technical Culture, Zagreb
 Croatian Institute for Bridges and Constructions, Zagreb
 INA d.d., Zagreb
 Civil Engineering Institute of Croatia, Zagreb
 Institute for Transport and Communications, Zagreb
 Geological Research Institute, Zagreb
 Končar – Electrical Engineering Institute, Zagreb
 Kraš d.d., Zagreb
 Transmitters and Links, Zagreb
 Pliva d.d., Zagreb
 Supra Net, d.o.o.
 Uljanik Shipyard, Pula

Euro-CASE Board Meeting N° 30

Paris, France, April 25, 2007

Annual Board Meeting of Euro-CASE (The European Council of Applied Sciences, Technologies and Engineering – <http://www.euro-case.org>) held in Paris, France on April 25, 2007 also had a somewhat jubilant feature, since in the evening of the day before the meeting a ceremonial dinner was prepared on which numerous speakers addressed the attendants on the occasion of the celebration of the **15th anniversary of Euro-CASE foundation**

(today 19 full members and one associate member, the Croatian Academy of Engineering – since 2001) and the withdrawal of the Secretary-General of Euro-CASE, Mr. Pierre Fillet, who had successfully carried out his duties for 15 years (and would be replaced by Mr. Bruno Jarry). It should be noted that we are exceptionally proud about this membership (and recognition and “equality” in the work of Euro-CASE) being a member who has not entered the EU yet!

The working session of the meeting held on April 25, 2007 at the Euro-CASE seat in 28, rue Dominique, 75007 Paris, France, was attended by 17 members of the Board and three technical members, executive adviser Mr. Alain Mongon and secretaries Ms. Helle Bonnet i Ms. Nadia Pipunic. It was presided by the current chairman of the Board Dr. Ben Veltman from Netherland. Before the beginning of the working session Prof. F. Tonković have had the honour of delivering Dr. Veltman, in the name of the HATZ, Acknowledgement for the support of gatherings during the celebration of the 150th Anniversary of the birth of Nikola Tesla in 2006 and two copies of Annual 2006 of the Croatian Academy of Engineering.

In the working session of the meeting discussions followed according to the proposed and accepted agenda:

1. Euro-CASE Finances
2. Euro-CASE Activities
3. Sustainability and Reinforcement of Euro-CASE
4. Euro-CASE Strategic Plan
5. Euro-CASE External Relations

Among the most important and for the HATZ most interesting discussions and conclusions we would single out the following:

Financial statement was accepted, business activity was positive, the HATZ settled its outstandings to Euro-CASE on time and, to our question about the payment and possible use of the Reserve Fund, it was agreed that the HATZ, as an associate member, would not have to make payments into the fund for the time being.

After the report of Mr. Alain Mongon an extended discussion about the activities of each of the Euro-CASE

Platforms followed, namely **Euro-CASE Platform** on Energy and Environment, **Euro-CASE Platform** on Engineering Education, **Euro-CASE Platform** on Innovation, **Euro-CASE Platform** on Transport and Mobility, **Euro-CASE Platform** on ICT and **Euro-CASE Platform** on Food Production Technologies. The work of the most active groups was most debated, i.e. **Platforms** on Energy and Environment and on ICT. Special discussions were held about Euro-CASE prizes for ICT (assignment mode, financing and publicity) and about the possibility of introducing a new award, European Energy/Climate Change Technology Prize.

Upon discussion of the item I have put forward the proposal of the HATZ that the members of our Academy should be involved in the activities of the groups by Platforms, namely Assist. Prof. Goran Granić, Ph.D. in **Euro-CASE Platform** on Energy and Environment, Prof. Stanko Tonković, Ph.D. in **Euro-CASE Platform** on Engineering Education and Prof. Vesna Lelas, Ph.D. in **Euro-CASE Platform** on Food Production Technologies. The proposals were accepted and, in accordance to the Euro-CASE procedure, sent to the chairmen of each Platform and adopted in the shortest possible term up to May 15, 2007 (Granić and Tonković, while Lelas' proposal awaits the constitution and beginning of the work of the Platform).

In the end there were discussions about visions and specific plans for the creation of the European Institute of Technology (originally “Paneuropean Institute of Technology) where as the main problem appeared the location of the Institute (the country), property rights and problems and modes of financing.

After discussion under Item 3 it was concluded that the activity of Euro-CASE mainly depended on the support and help of each member Academy. The proposal that each Academy chose its “Euro-CASE contact person” was adopted.

It was decided that the drafting of strategic plan should be left to the Executive Committee and discussed on the next meeting.

Quite a debate was instigated by the proposal that EU members (10 of them) should be offered the membership in Euro-CASE mainly as to the countries with a small number of inhabitants and without stronger scientific and research centers (Cyprus, Malta etc.).

In the end it was decided that the next meeting would be held in Paris in September, according to latest information on September 14.

Members of the National Academy of Engineering USA (NAE) Visited HATZ on June 24, 2007

On the suggestion and the initiative of Prof. Harold Forsen, Ph.D. (member of NAE) esteemed members of NAE visited Croatia, namely Prof. Robert M. Nerem, Ph.D., head of Parker H. Petit Institute for Bioengineering and Bioscience Georgia Institute of Technology in Atlan-

ta, Georgia, and Prof. John H. Linehan, Ph.D. from Stanford School of Medicine, Department of Bioengineering, Executive Faculty, Program in Bidesign, and were received by the president of HATZ, Prof. Zlatko Kniewald, Ph.D.



Annual 2006 HATZ

Inclusion of the Annual 2006 of the Croatian Academy of Engineering into ISI Proceedings Indices

On May 9, 2007 a notice arrived from Thomson Scientific, 3501 Market Street, Philadelphia, PA 19104, USA, that the HATZ publication "Annual 2006 of the Croatian Academy of Engineering" was selected for reference in following documentation databases:

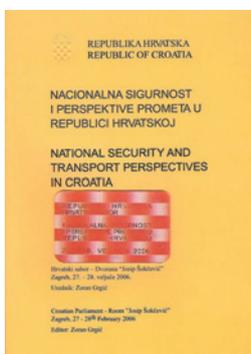
- M Index to Scientific & Technical Proceedings (ISTP/ISI Proceedings)

- IT Index to Scientific & Technical Proceedings (ISTP CDROM version/ISI Proceedings)

Inclusion in above mentioned databases is, by all means, a success of our publishing activities.

National Security and Transport Perspectives in Croatia

ISBN: 953-96644-3-8



In the organization of the Council for the Control of Security Services of the Croatian Parliament and under the auspices of the Board for Internal Affairs and National Security of the Croatian Parliament a conference with invitations was held from February 27 to 28, 2006 on the significance, role and security aspects of all forms of transport within and across the Republic

of Croatia. Special attention was paid to existing human resources, development trends, as well as to the need of a constant education of employees in the system as to rapid changes and technological improvements in the world.

Moderators of the conference, among others, have been following members of the HATZ: Prof. Krešimir Čosić, Ph.D., Academician Josip Božičević and Prof. Ivan Bošnjak, Ph.D.

The papers for the Conference Proceedings published in Croatian and in English by editor Zoran Grgić, B.E. have been submitted by:

- Prof. Zlatko Kniewald, Ph.D., Human Resources as a Pre-condition of Traffic Safety in the Republic of Croatia, pages 101 – 110,
- Prof. Vilko Žiljak, Ph.D., Security Systems Based on Graphic Technologies, pages 111 – 116,
- Prof. Ivan Bošnjak, Ph.D., Integration of Intelligent Transport Systems into National Security System, pages 153 -160.

The Conference Proceedings (ISBN 953-96644-3-8) include 23 papers on 213 pages and are available to the public in the Library of the HATZ.

Science and Technology Policy of the Republic of Croatia, Ministry of Science, Education and Sports of the Republic of Croatia

ISBN: 953-6569-26-4



On May 5, 2006 the Government of the Republic of Croatia adopted the document “Science and Technology Policy of the Republic of Croatia 2006 – 2010” which defined the development vision of science and technology in the framework of their implementation. The document comprises a preface and most important notes divided in three sections:

1. Introduction
2. Science and Higher Education
3. Technologies and Innovations.

In the Preface the Minister, Prof. Dragan Primorac, Ph.D. states:

Main goals of the Science and Technology Policy are increased investments in science, research and development based on the principle of excellence and their better efficiency, reorganization of science sector, fostering of scientific partnerships and the support system for outstanding young researchers, support and strong connection of science and industry and establishment of a stimulating framework for their mutual promotion, support of the measures aimed at the development of technology and innovations, as well as a more intensive participation of Croatian scientists in the European Union Framework Programs. As particularly important I would like to point out to the fact that the Science and Technology Policy of the Croatian Government has acquired the support of the World Bank through a loan in the amount of 230 million HRK...

Then he emphasizes the importance of the document for the development of education and science:

Introduction of the Croatian National Educational Standard (CNES) in primary schools, prolongation of obligatory education to the secondary schools, preparations for the introduction of the state baccalaureate into secondary schools by way of national exams, implementation of the Bologna Pro-

cess on Faculties, introduction of external education evaluation, as well as the consolidation of Universities and scientific and research institutions, are the foundation of a new system of education and science – the system which intends to create up to the year of 2010 the most competitive scientific and educated society in this part of Europe.

Apart from that, for the implementation of the Lisbon Program it is necessary to do as follows:

It is a strategic decision of the Republic of Croatia, as a candidate country for the membership in the European Union, to increase contributions to science and technology so that, in accordance with the aims of Lisbon strategy, we would up to 2010 approach the budget funding level of 3% GDP, out of which 2/3 from private sources. Due to increased funding of science and especially to private investments, it is necessary to strengthen the connections among science, industry and society, as well as to ensure stimulating regulations, taxes and the functioning of scientific institutions.

Croatian science and technology sector is concisely and articulately described in the Introduction where key goals are set, and then described in detail in the second and third part.

It is easy to make out the aspiration of Croatia, by the implementation of proposed policy, to readily join the European research area.

For more than 5 decades Croatian research area functions in a routine, similar way and the role of science in economy is minute. And now this state document enhances its positioning in relation to the European research area and those changes which are to enable an easier integration. Thus the proposed document is an invitation to all scientists to take active part and contribute to the realization of the suggested policy. It is also an invitation to our Croatian Academy of Engineering and its members to reconsider their activities and adapt their programs to the Science and Technology Policy stated in the document. The HATZ should particularly contribute to the closer cooperation of science and economy from one part and from the other to the strengthening of national innovation system, promotion of public confidence in science and technology, and awareness of the importance of innovations. It is a challenge to the HATZ leadership to benefit from the synergy of its departments and become a necessary liaison institution of Croatian innovation system which has to be renewed and given an important role defined by the Croatian Science and Technology Policy.

At the end let us emphasize the meaning of European Research Institute – ERI introduced in 2000:

To enable direct interaction among scientists and the work in the centers of excellence, as well as in the networks of outstanding scientific institutions;

To spread, learn, evaluate and use acquired knowledge to the benefit of all nations and boost of standard;

To optimize and start European, national and regional programs with the aim of their common implementation and application;

To develop strong bonds with partners around the world so that Europe could make use of the knowledge expan-

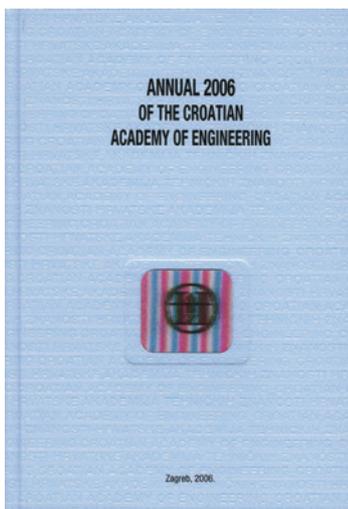
sion in the world, contribute to global development and take over the leading role in international initiatives for solving global problems.

Let us join that challenging enterprise, let us contribute to its realization!

Note: Complete material “Scientific and Technological Policy of the Republic of Croatia” is available on web pages of the HATZ.

Annual 2006 of the Croatian Academy of Engineering

ISSN 1332-3482



Annual 2006 of the HATZ has so far been the largest of all the Annuals and by far, for example by the hologram on the cover, colour print and added Power Point presentations, quite different from the preceding ones. The size and the content of the Annual reflect the last year activities of the HATZ, in particular the Colloquium “Knowledge-Based Croatia – Possible Contribution

of Croatian Scientists” and activities related to the celebration of the 150th anniversary of the birth of Nikola Tesla.

The Annual has 433 pages and is divided in five units.

In the first unit there are five elaborations of the papers submitted to the CAETS Assembly held in Cairns, Australia in July 2006 and to the Colloquium “Knowledge-Based Croatia – Possible Contribution of Croatian Scientists” held before the last year Assembly of the HATZ on February 28, 2006.

The second unit comprises 14 elaborations of the papers partially presented at the Scientific and Professional Meeting “The Life and Work of Nikola Tesla” held in the Concert Hall “Vatroslav Lisinski” in Zagreb from June 27 to 29, 2006, the opening ceremony of which was also attended, apart from 1,200 participants, by the highest government officials, numerous ambassadors and renown scientists.

Four papers (together with Power Point presentations) published in the third unit were presented at the Symposium “Tesla in Croatia” held at the UNESCO House in Paris on September 13, 2006. It was the first scientific gathering organized by a Croatian institution in the international center of UNESCO in Paris!

The fourth unit presents three shorter reviews of the speech made at the gathering “With Tesla in the Progress of Croatia” which took place in the Museum Mimara on November 24, 2006. The gathering was held in Croatian and there were no Power Point presentations available.

And in the end there is a short account of the activities related to the organization of the Marie Curie Workshop held from October 7 -11, 2006, the first scientific and professional gathering in Croatia under the patronage of the European Union which attracted, among others, around a hundred young scientist from entire Europe and which was opened by Prof. Janez Potočnik, Ph.D., the EU Commissioner for Research and Technological Development.

The Annual has been quoted in **ISI** and in some other well-known documentation databases and will also be available in the libraries of all Academies of Technical Sciences, members of **CAETS** (International Council of Academies of Engineering and Technological Sciences) and **Euro-CASE** (European Council of Applied Sciences, Technologies and Engineering). It will also be available on the web pages of the HATZ.

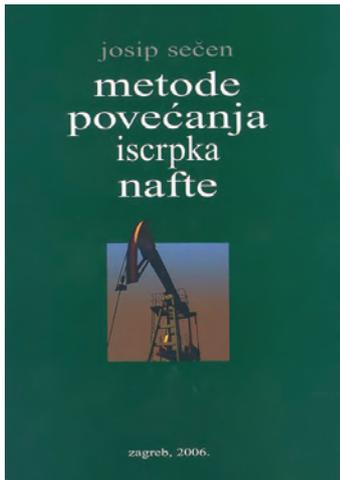
Annual 2006 of the Croatian Academy of Engineering represents a contribution of exceptional scientific and professional significance in the field of technical sciences. The works of some 40 scientists and experts from various fields are published in it contributing to the exchange of ideas and establishing close cooperation. Published scientific works are reviewed and represent original contributions of the prominent authors to the development of science.

Of particular importance are the papers on the life and work of Nikola Tesla. Published papers are of a wider social significance since they enable the popularization of science and better understanding of the results of scientific works on the improvement of the people's quality of life. The Annual includes scientific works of a high quality intended for technical, scientific and professional public.

“Annual 2006 of the Croatian Academy of Engineering is a **scientific work** comprising the results of scientific research and scientific material with a critical review and scientific synthesis” (*from the review of the Annual by Prof. Sonja Grgić, Ph.D.*).

Enhanced Oil Recovery Methods

ISBN 953-7049-34-5



Towards the end of 2006, there was a promotion of the fourth book by Prof. Josip Sečen, Ph.D., entitled “Enhanced Oil Recovery Methods”.

The author’s idea was to present to the expert public – in the phase of slow oil recovery, not only in Croatia, but also in the world in general – all the possibilities of increasing oil yield in the secondary and tertiary phase of reservoir exploitation.

Given the global trend of crude oil price increase and growing oil reservoirs exhaustion, the application of methods for additional yield increase makes part of the strategies of nearly all national and multinational oil corporations. Not only of oil, but also of condensates, being associated with the most complex mechanism of exploiting gas-condensate reservoirs.

The book was published in Croatian and consists of an introductory part, seven chapters, as well as an index of names and terms treated on 608 pages.

The first chapter brings the most significant factors on which depends the applicability of the oil recovery methods. They are: volume of left over oil, properties of reservoir rocks and fluids, laws of multiphase fluid flow in porous surroundings and efficiency of oil recovery expressed through the coefficients of surface, vertical and volumetric reservoir coverage by recovery fluids.

The second chapter brings a detailed analysis of the most applied oil recovery method – both locally and globally: water flooding of oil reservoirs. Treated were the methods of calculating oil yield in the secondary phase of reservoir exploitation by several authors, from the simplest ones, used for a fast applicability comparison, to those more complex, approaching numerical methods.

The third chapter provides a detailed description of an enhanced oil recovery method also in the secondary phase of

reservoir exploitation, using gas, at non-miscible (non-critical) conditions. It is the oldest enhanced oil recovery method used somewhat less, since it is less efficient than water.

The fourth chapter provides a detailed description of all the aspects of miscible processes of enhanced oil recovery. Treated are the mechanisms of creating conditions for fluid mixing, characteristics of phase conditions and miscibility of fluids, a review of the possibilities of applying different procedures, especially carbon dioxide, whose economical application is expected in the oil fields of Croatia, parameters impacting the efficiency of miscible processes, and methods of calculating oil yield.

The fifth chapter provides a detailed description of thermal methods of enhanced oil recovery. They are used mostly for recovering heavy and immobile crude from rather shallow reservoirs by bringing heat into reservoirs, thereby changing their viscosity and composition. The essence of thermal methods has been described in detail encompassing the procedure of oil recovery using hot fluids (thermal properties of rocks and fluids, criteria of vapour application, heat losses and methods of calculating oil yield) and oil burning within reservoirs (dry and wet burning, methods of designing the burning process and methods of calculating yields).

The sixth chapter treats the application of chemical enhanced oil recovery methods. Under the notion of chemical methods, the author refers to the physical/chemical mechanisms of the effect of different, complex procedures of oil recovery from the reservoirs. There is a summarized account of oil recovery using polymers, water alkaline solutions and surface active substances, as well as factors impacting oil yield.

The seventh chapter treats issues associated with increasing the yield of condensates (hydrocarbons) from gas-condensate reservoirs. The topic of the chapter is quite complex and specific, with regard to other chapters. It provides a rather shortened account of the necessary expert pieces of information, instructing the reader where to look for additional information in the references on the manner of increasing the yield of hydrocarbons from the gas condensate reservoirs in Croatia.

Intelligent Textiles for Personal Protection and Safety

ISSN:1574-5589

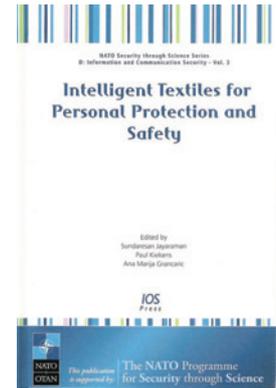
Editors: Sundaresan JAYARAMAN, Paul KIEKENS,
Ana Marija GRANCARIĆ

Publisher: IOS Press 2006 Amsterdam;

ISBN: 1-58603-599-1; the book is of B5 format,
comprising 147 pages.

In the introduction of the book Kiekens points out to the importance of a multidisciplinary approach to personal protection and safety in crises. Jayaraman classifies contemporary weapons in four groups: conventional, nuclear, biochemical and chemical, emphasizing the importance of protection organization depending on the type of arms. Intelligent textiles

have to unite two important functions – of the sensor and of the actuator. Accordingly the role of textiles could be crucial if traditional, passive textiles are transformed into active ones of intelligent structure. He assumes that by the third dimension of intelligence the textiles could register stimulus (*the sensor*) from the environment and then react (*the actuator*). The book is available in the library of the HATZ.



Library of the Croatian Academy of Engineering

in the House of the HATZ, 28 Kačić St., 10000 Zagreb, Croatia

Funds for the organization of the library have been provided by Hrvatska elektroprivreda, Inc.

JOURNALS

- Croatian journal "Priroda"
- Solar Technology

BOOKS

- text-books
- manuals
- monographs
- proceedings of scientific meetings

PERIODICALS

- 1. Periodicals of the Croatian Academy of Engineering:
- Tehničke znanosti – Courier of the Croatian Academy of Engineering in Croatian
- Engineering Power – Bulletin of the Croatian Academy of Engineering
- Annual of the Croatian Academy of Engineering
- Periodicals of the Members of CAETS and Euro-CASE:
- Indian National Academy of Engineering
- National Academy of Technologies of France
- Chinese Academy of Engineering
- Royal Swedish Academy of Engineering Sciences
- The Hungarian Academy of Engineering

- The Engineering Academy of Japan
- The National Academy of Engineering of Korea
- Australian Academy of Technological Sciences and Engineering
- Norwegian Academy of Technological Sciences



The library is equipped by a PC and the connection to the Internet, and its opening hours are from Monday to Friday 9 -12 a.m.

In memoriam

VLADIMIR MULJEVIĆ

(1913 – 2007)



Vladimir Muljević was born in Zagreb where he finished high school and graduated at the Zagreb Technical Faculty in 1939. In 1944 he obtained his doctor's degree from the Technical Faculty (Technische Hochschule) in Vienna. He published some 450 scientific and professional works and held over 150 scientific and popular lectures.

He founded the Department for Regulation and Signal Engineering at the Technical Faculty over which he presided for 28 years. From 1966 to 1968 he was Dean and from 1968 up to 1970 Vice-Dean of the Faculty of Electrical Engineering (which was established as one department of the former Zagreb Technical Faculty and is now known as Faculty of Electrical Engineering and Computing) of the University of Zagreb. As a proponent of the ideas of cybernetics and regulation—quite modern for that time—Vladimir Muljević was one of the initiators and founders of the JUREMA (today KOREMA) association. He was the founder and chief editor of the periodical *Automation and Croatian University*, initiator and organizer of the Technical Encyclopaedia of Lexicographical Institute

and member of the first editorial board, one of the founders of Technical Museum in Zagreb, one of the initiators and first president of *the Association of Electrical Engineers of the Faculty of Electrical Engineering in Zagreb* (AMAC FER). He was president of the Croatian Biological Society in Zagreb from 1975 to 1976. He was fellow member of the organization IEEE. For a very prolific and successful work he received more than 50 recognitions and awards among which particularly excelled: The Republic Award for the Popularization of Science “Fran Tučan” (1988), The Award for Technical Sciences of the Croatian Academy of Sciences and Arts (1994), The State Award for Technical Culture “Faust Vrančić” for Life Achievement (1996), The Life Achievement Award of the Croatian Association of Technical Culture (1998). Vladimir Muljević received honorary doctorate (Dr. h. c.) from the Rostock University (1985) and the title of Professor Emeritus from the University of Zagreb (1997).

As a relentless and diligent lexicographer caring for Croatian word, Professor Muljević finished huge projects: *German-Croatian Electrical Engineering Dictionary* (1966) and *Croatian-German Electrical Engineering Dictionary* (2000).

Vladimir Muljević was Honorary Member of HATZ.

SINIŠA BAN

(1914 – 2007)



On June 5, 2007, professor emeritus Siniša Ban died in his 93. He studied at the Technical Faculty of the University of Zagreb and graduated in 1938. He acquired his doctorate in biotechnical sciences in 1965 from the Faculty of Technology of the University of Zagreb. He was technical manager of the factories in Sisak

and Brčko from 1939 to 1942, of the Central Alcohol Refinery in Slavonski Brod from 1942 to 1944 and then of Žumberak in Savski Marof (PLIVA today), as well as of

Marijan Badel in Sesvete. He was one of the founders of the Biotechnological studies at the Faculty of Technology in Zagreb in 1956/57 where he was elected full professor, upon the foundation of the independent Faculty for Food and Biotechnology, and later on professor emeritus in 1998. He devoted special attention to the education of young engineers and specialists for the purpose of economy to whom he transferred his huge technical knowledge. Prof. Siniša Ban is the author of 60 scientific works, a number of technical improvements and the holder of 7 patents directly applied to the production processes.

Siniša Ban was Honorary Member of HATZ.

SCIENTIFIC CONFERENCE
WITH THE INTERNATIONAL PARTICIPATION

ENGINEERING EDUCATION
THE BOLOGNA PROCESS

“
3 YEARS LATER”

FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING
UNSKA 3, ZAGREB, CROATIA

NOVEMBER 8-10, 2007

Registration and information at: www.hatz.hr/engineeringeducation

ORGANIZERS:
MINISTRY OF SCIENCE, EDUCATION AND SPORTS
UNIVERSITY OF ZAGREB, CROATIA
CROATIAN ACADEMY OF ENGINEERING

IN COOPERATION WITH:
EURO-CASE - PLATFORM ON ENGINEERING EDUCATION
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING (EACCN ACCREDITED TEL 2010)

DESIGN: EHP

Supporting Institutions Ministry of Science, Education and Sports of the Republic of Croatia, University of Zagreb, The Vehicle Center of Croatia, Zagreb, INA d.d., Zagreb, Civil Engineering Institute of Croatia, Zagreb, Končar – Electrical Engineering Institute, Zagreb, Pliva d.d., Zagreb, Energy Institute Hrvoje Požar, Zagreb

JANEZ POTOČNIK
Member of the European Commission

09. 10. 2007
Brussels,
BC/lg D747 (A1841)

Professor Zlatko Kniewald, Ph.D.
Croatian Academy of Engineering
By email: kniewald@hazina.hr

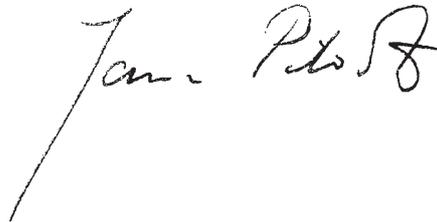
Dear Professor Kniewald,

Thank you for your email dated 2 October inviting me to attend the conference you are jointly organising with the University of Zagreb entitled 'Engineering Education – the Bologna Process 3 years later' which will take place from 8 to 10 November 2007.

Unfortunately, I regret to advise you that I will be unable to join you in Zagreb due to prior diary commitments that week.

I wish you all the best with this event.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Janez Potočnik', written in a cursive style.



CAETS 2007 TOKYO

“Environment and Sustainable Growth”



Oct. 23-26, 2007

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- ▶ Invitation
- ▶ About CAETS
- ▶ Program
- ▶ Profile
- ▶ Technical Tour
- ▶ Registration
- ▶ Accommodation
- ▶ Social Program
- ▶ Access
- ▶ General Information
- ▶ Organizing Committee
- ▶ Supporters
- ▶ CAETS Member Academies
- ▶ Contact

Program at a Glance

October 22, Monday

10:00- CAETS Business Meeting
(Executive Committee)

14:00- CAETS Business Meeting (Board
of Directors)

17:00- Cocktail Party

18:00- Cocktail Party

20:00

October 23, Tuesday

10:00- Opening Ceremony and Keynote
Lecture

12:00- Lecture

13:00- Session 1 Global Environmental
Issues

17:00- Session 1 Global Environmental
Issues

18:00- Welcome Reception

20:00- Welcome Reception

October 24, Wednesday

09:00- Session 2 Technological
Challenges

12:30- Session 2 Technological
Challenges

13:30- Session 3 Scenarios for
Sustainable Growth

17:30- Session 3 Scenarios for
Sustainable Growth

18:30- Symposium Dinner

21:00- Symposium Dinner

October 25, Thursday

09:00- Closing Session Views for the
Statement to the World

12:00- Closing Session Views for the
Statement to the World

13:00- Technical Tour: JAMSTEC
(Yokohama) - Earth Simulator
Center

17:00- Technical Tour: JAMSTEC
(Yokohama) - Earth Simulator
Center

18:00- CAETS Dinner

20:00- CAETS Dinner

October 26, Friday

09:00- CAETS Council Meeting

16:30- CAETS Council Meeting

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The events printed in red are open to
CAETS members only.

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http://www.congre.co.jp/caets2007tokyo/program_g.html

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