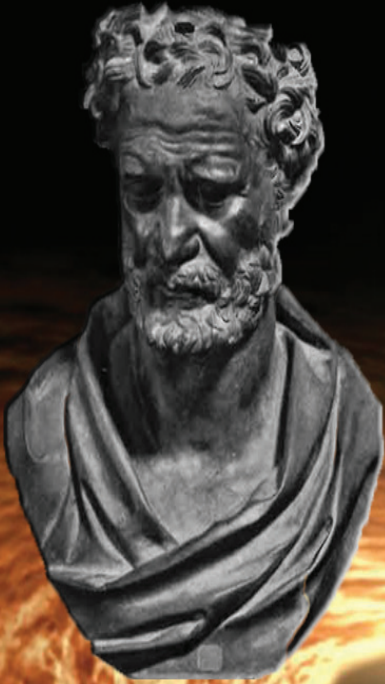


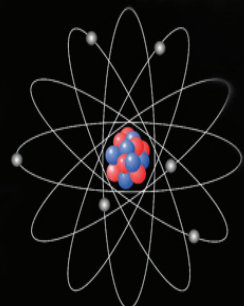
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Diploma

May 2013 | Vol. 1, Issue 1



THE HISTORY OF THE
ATOMIC THEORY AND
ITS GREEK ORIGIN



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Industry
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Letter from the Advisor

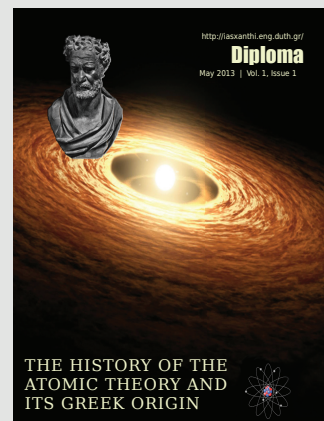
Dear colleagues, students and friends of the IEEE Industry Application Society Student Branch Chapter of Democritus University of Thrace, Greece, I am glad to present to you the first issue of the Chapter's Magazine, containing general information about IAS and this Chapter, scientific articles and acquaintance with other similar Chapters worldwide.

This Magazine contributes to the already successful activities of DUTH IAS SBC and certainly proves the dedication and the abilities of the Chapter's student members. We should certainly expect them to create many more good things and to become the future leaders in any science field they will choose to serve.

Prof. Athanasios Karlis
Chapter's Advisor

ON THE COVER: Democritus, Ring galaxy, atom

DIPLOMA



Coverstory:

The birth of the atomic theory in ancient Greece and its evolution through time.

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IAS CHAPTER AWARDS AND CONTESTS 2013

by Dr.-Ing Peter Magyar, CMD chair

The Chapters and Membership Development (CMD) Department is pleased to announce the winners of the 2013 CMD awards and contests. It is my great honor to express my sincere congratulations to all contest participants and especially to the winners. The chapter contest was characterized by the fact that the majority of the nominations came from student branch chapters. Currently, there are 52 SB IAS chapters and 136 society chapters.

One of the most important contest is the Graduate Student Thesis Contest. This is the third year in its history. The previous dominance of the R8...10 chapters has been broken this year. This year, there are also North-American students among the winners.

I send my congratulation to the **DUTH Xanthi SB IAS Chapter** which has been awarded in two categories. The IAS Outstanding New Student Branch Chapter Award and the IAS Chapter Web Contest 1st Prize Award will be presented at the IAS Annual Meeting, Orlando, FL USA, Oct 6-10, 2013.

I wish you the **DUTH Xanthi SB IAS Chapter** success in continuing its outstanding activity in the future.

Outstanding IAS Chapter Awards for the 2012 activity

IAS Outstanding Large Joint Chapter

Eastern North Carolina Section Joint PES/IAS Chapter (Chair: Roger G Lawrence)

Southern Alberta Section Joint PES/IAS Chapter (Chair: Dale Tardiff)

IAS Outstanding Large Chapter

Singapore Section Joint IAS/PELS Chapter (Chair: Sanjib K Panda)

IAS Continued Outstanding Performance Large Chapter

Delhi Section Joint PES/IAS Chapter (Chair: Mini S Thomas (2012), Sukumar Mishra (2013))

Germany Section Joint IAS/PELS/IES Chapter (Chair: Axel Mertens (2012), Omid Forati Kashani (2013))

New York Section Joint PES/IAS Chapter (Chair: Arnold D. Wong (2012), Paul Sartori (2013))

IAS Continued Outstanding Performance Small Chapter

Panama Section IAS Chapter (Chair: Jose E Correa (2012), Jose Eduardo Diaz (2013))

IAS Outstanding Student Branch Chapter

Rajiv Gandhi Institute of Technology Government Engineering College, Kottayam, Kerala, India, SB IAS Chapter (Chair: Lina Sera Varghese (2012), Williams K. Francis (2013))

San Buenaventura University, Bogotá, Colombia, SB IAS Chapter (Chair: Luis Miguel Quevedo Martinez)

Universidad Distrital Francisco Jose de Caldas, Bogota, Colombia, SB IAS Chapter (Chair: Ana Catherine Lozano Flamang)

Outstanding IAS Chapter Awards for the 2012 activity

IAS Outstanding Student Branch Joint Chapter

Texas A&M University, College Station, TX, USA, SB PES/IAS/PELS Chapter
(Chair: Qin Yan)

University of Nebraska-Lincoln, Lincoln, NE, USA, SB PES/IAS/PELS Chapter
(Chair: Dingguo Lu)

IAS Outstanding New Student Branch Chapter

Amrita Vishwa Vidyapeetham University, Amritapuri, Kerala, India, SB IAS Chapter (Chair: Muralikrishnan K)

An-Najah National University, Nablus, Palestinian Territory, SB IAS Chapter
(Chair: Hussam Malhis (2012), Nooraldin Muala (2013))

Democritus University of Thrace, Xanthi, Greece, SB IAS Chapter (Chair: Christina-Panagiota Malliou)

Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat, India, SB IAS Chapter (Chair: Megha Tak (2012), Saksham Gupta (2013))

IAS Continued Outstanding Performance Student Branch Chapter

Budapest University of Technology and Economics, Budapest, Hungary, SB PES/IAS Chapter (Chair: Beata Polgari)

2013 IAS Chapter Web Contest

1st Prize

Amrita Vishwa Vidyapeetham University, Amritapuri, Kerala, India, SB IAS Chapter

(<http://ias.amrita.ac.in/>, Chair: Muralikrishnan K, Webmaster: K.M. Balaji)

Colombia Section IAS Chapter (<http://sites.ieee.org/colombia-ias/>, Chair: Jenifer Castillo, Webmaster: Byron Perez-Gutierrez)

Democritus University of Thrace, Xanthi, Greece, SB IAS Chapter (<http://iasx-anthi.eng.duth.gr>, Chair: Christina - Panagiota Malliou, Webmaster: Christos Pnevmatikos)

Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat, India, SB IAS Chapter (<https://ias.daiict.ac.in>, Chair: Saksham Gupta, Webmaster: Zeel Shah)

Eastern North Carolina Section Joint PES/IAS Chapter (<http://sites.ieee.org/encs/pes-ias/>, Chair: Roger G Lawrence, Webmaster: Zhi Gao)

2nd Prize

An-Najah National University, Nablus, Palestinian Territory, SB IAS Chapter (<http://www.najah.edu/ar/node/27758>, Chair: Nooraldin Muala, Webmaster: Allam Mousa)

Budapest University of Technology and Economics, Budapest, Hungary, SB PES/IAS Chapter (http://www.eszk.org/index.php?change_lang=en, Chair: Beata Polgari, Webmaster: Boglárka Erdős)

Delhi Section Joint PES/IAS Chapter (<http://www.ewh.ieee.org/r10/delhi/pe-ia.html>, Chair: Sukumar Mishra, Webmaster: Subrata Mukhopadhyay)

Rajiv Gandhi Institute of Technology Government Engineering College, Kottayam, Kerala, India, SB IAS Chapter (<http://www.rit.ac.in/IEEEIAS/RITWebsite/index.html>, Chair: Williams K. Francis, Webmaster: Jibi Abraham)

2013 IAS CMD Graduate Student Thesis Contest

1st Prize Recipient:



Taesic Kim, M.S.: *A Hybrid Battery Model Capable of Capturing Dynamic Circuit Characteristics and Nonlinear Capacity Effects (2012)*, Dept. of Electrical Engineering, University of Nebraska-Lincoln, Lincoln, NE USA.

Thesis advisor: Wei Qiao, Harold and Esther Edgerton Associate Professor, Dept. of Electrical Engineering, University of Nebraska-Lincoln.

2nd Prize Recipients:



Beáta Polgári, M.Sc.: *Application of Smart Meters Especially for the Detection of Illegal Electricity Usage (2012)*, Budapest University of Technology and Economics (BUTE), Budapest, Hungary.

Thesis advisor: Dr. Dávid Raisz, Ass. Professor, Department of Electrical Power Engineering, BUTE.

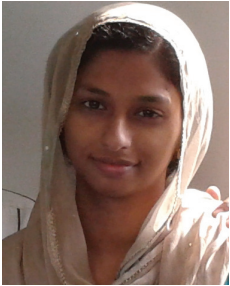


Mohammad B Shadmand, M.S. : *A Design-Oriented Framework to Determine the Parasitic Parameters of High-Frequency Magnetics in Switching Power Supplies using Finite-Element Analysis Techniques (2012)*, Dept. of Electrical and Computer Engineering, Texas A&M University, College Station, TX USA.

Thesis advisor: Robert S Balog, Professor, Dept. Electrical and Computer Engineering, Texas A&M University.

2013 IAS CMD Graduate Student Thesis Contest

3rd Prize Recipients:



Sanila C.M., M.Tech.: Direct Torque Control of Induction Motor with Constant Switching Frequency (2012), Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam, Kerala, India.
Thesis advisor: Dr. Vincent George, Asst. Professor, EEE Department., Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam.



Nikhil Valsan K, M.Tech.: Reduction of Harmonics in Induction Motor Drive Using Novel Topology (2012). Rajiv Gandhi Institute of Technology, Govt. Engineering College (RIT), Kottayam, Kerala, India
Thesis advisor: Dr. Joseph K. D., Asst. Professor, EEE Department., Rajiv Gandhi Institute of Technology, Govt. Engineering College, Kottayam.



Evelin Kiss, M.Sc.: K, M.Tech.: Procurement of P-f Control Reserves in the Hungarian Electricity System (2011). Budapest University of Technology and Economics (BUTE), Budapest, Hungary.
Thesis advisors: László Szabó, Ass. Professor, Department of Electrical Power Engineering, BUTE, and Gábor Alföldi, MAVIR ZRt, Budapest.

WHO ARE WE?

by Christina Pamagiota, Malliou
DUTH SB IAS Chapter Chair



On July 9, 2012, after a motivational speech given by **Dr. Peter Magyar**, an IEEE fellow and IAS Chapters and Membership Development Department Chair and **Dr. Mark Halpin**, an IAS Past President and an Alabama distinguished Professor, we founded our IAS Student Branch Chapter in cooperation with our **chapter's advisor Prof. Athanasios Karlis**, an assistant professor of the Electrical Machines Laboratory, Division of Energy Systems, Department of Electrical and Computer Engineering, Faculty of Engineering, Democritus University of Thrace.

Our vision is to provide knowledge to our members with the cooperation of distinguished professors, to give them the opportunity to become acquainted and work with experts in the field of industry, to inform them about the latest technological and industrial applications and help them to create a connection with industry professionals.

From the day our SBC was founded, we are trying to be as active as possible. We try to organize activities, lectures and broadcasts in a regular basis.

IEEE IAS and Student Activities



In addition to our activities, in November 2012 we applied a proposal for hosting the **IAS Executive Board meeting** in Region 8-10 in conjunction with a technical conference about Electric Mobility and the Supporting Infrastructures. We also applied to **IAS Chapter Web Contest** where our site was awarded with the **first prize** and last but not least for our activity through 2012, our chapter was awarded as an **IAS Outstanding New Student Branch Chapter**.

Moreover, three of our members have participated to international conferences **SBC Madrid 2012** (25 - 29 July 2012) and **IAS Annual Meeting, Las Vegas, NV USA** (7 - 11 October 2012) where our presentation won the **second prize**. Furthermore, two more of our members are going to attend the **IAS Annual Meeting 2013, Orlando, FL USA** (6 - 11 October 2013).



IAS Annual Meeting 2012

Our university, Democritus University of Thrace was established in July 1973. It is based in Komotini, Greece, it has

campuses in the Thracian cities of Xanthi, Alexandroupoli and Orestiada and it is named in honor of the great ancient Greek philosopher and scientist Democritus who lived near Xanthi, in the city of Avdira. It has two faculties and twenty departments in four cities — nine in Komotini, five in Xanthi, four in Alexandroupoli and two in Orestiada. The total number of students is approximately 30,000.



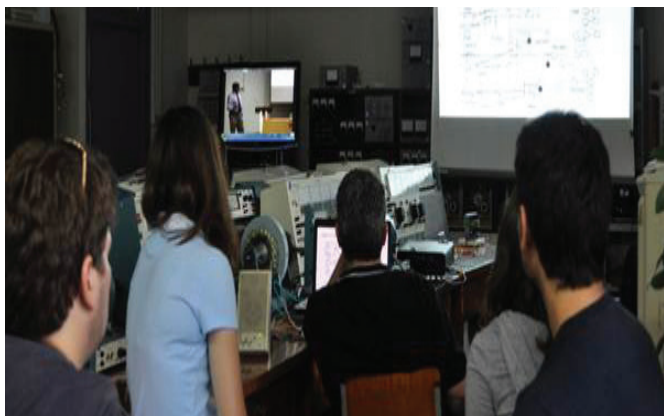
SBC Madrid 2012

Our Department, the Department of Electrical and Computer Engineering, which was the second department founded in Xanthi, has a total of 45 members of the Teaching and Research Staff at various levels and consists of five Sectors: the Sector of Energy Systems, the Sector of Electronics and Computer Systems Technology, the Sector of Telecommunications and Space, the Sector of Software and Application Development and the Sector of Physics and Applied Mathematics.

IAS DUTH SBC ACTIVITIES

by Christina Pamagiota. Malliou,
DUTH SB IAS Chapter Chair

Our first activity as a newly founded Student Branch Chapter was a live broadcast from NTUA's lecture given by **Prof. Shmuel Oren** on **"Smart Markets for a Smart Grid"** and it took place on June 6, 2012 in the Electrical Machines Laboratory.



IEEE IAS DUTh SBC: “Smart Markets for a Smart Grid”

When the summer vacations were over, we came back more dynamic than ever and we organized the first **Annual Presentation** of our Student Branch Chapter on October 31, 2012. Our students were informed about IAS, the reasons that they should be a part of our society, the foundation of our Student Branch Chapter and our past activities.



S DUTH Student Branch Chapter Annual Presentation

IEEE IAS Annual Presentation 2012

On November 9 we organized a seminar on **“The admission to an organization and structure of a successful presentation of ourselves: Tips and proper placement of candidate partners”** by **Dr. Georgiadis**. During this seminar we had the chance to learn the functions and the goal of Human Resource Department, its objectives and the challenges that a new engineer will have to face in the labour market. Dr. Georgiadis informed us about the selection mode during an interview and he also gave us some tips concerning our CV. We also had the opportunity to see a role play interview.



"The admission to an organization and structure of a successful presentation of ourselves: Tips and proper placement of candidate partners"



Last but not least we organized on December 7, 2012 a lecture on **"New technologies in energy and transportations"** where **Dr. Kiartzis** informed us about the investments of Hellenic Petroleum in the renewable energy sources and the new technologies that are now used in the field of transportation.

"New technologies in energy and transportation"



WHAT'S NEXT?

by Christima Pamagiota. Malliou, DUTH SB IAS Chapter Chair

After our first proposal for hosting the **IAS Executive Board Meeting**, we plan to submit a new one for the next year.

In local level, we plan to organize **visits to local companies** and **tours to local industries** in order to create a connection between the students of our Student Branch Chapter and the industry professionals.

As our vision is also to provide knowledge, we are planning to organize a lecture through the Distinguished Lecturer Programme given by Prof. **Frede Blaabjerg**, a distinguished professor with more than 500 publications in the field of Energy and Industrial Engineering.

Moreover, on June 3, 2013 we will have the honor to attend a series of lectures by **Mr. Blake Lloyd** and **Dr. Peter Magyar** about IAS, Student and Chapter Activities and a lecture by Dr. Magyar on *"The Electric Car and the Renewable Energy Sources - Hype or Solution?"* In addition to this, during their stay, we will organize a **visit to a local photovoltaic park**.

Last but not least, we are planning to organize a lecture by Greek IAS Chapter Chair, Prof. **Stefanos Manias** on *"The Application of Power Electronics in new technologies"*.

Our plans do not stop here though. In every meeting we search new ways to provide the best to our members.

THE ELECTRIC CAR AND THE RENEWABLE ENERGY SOURCES HYPE OR SOLUTION?

by Dr.-Ing. Peter Magyar, CMD chair



The development of transportation vehicles is one of the greatest achievements of modern technology. Especially the automobile has become important part of the everyday life because of providing individual mobility for the wide public. However, the large number of automobiles in use has caused serious problems for the society and has been held responsible for air pollution, global warming and intensive use of the lim-

ited oil resources. The interaction of developers, manufacturers, energy authorities, politics, media and customers is increasing the interest and the pressure on the development of new, green solutions, among others electric cars expecting to solve all of the above listed problems by using electrical drive train technologies.

Does the electric car really save energy, decrease the carbon dioxide emission and the environmental pollution? What technical, economical, political and customer aspects affect that the recent development does not always result in a green solution? Is it possible to change this trend by using renewable energy sources?

To answer these questions, the lecture gives an overview about the automotive structure, energy and electricity generation issues and the impact of the increasing use of renewable energy sources in Germany. Attributes of some newly developed electric cars demonstrated and the political and economical issues of the conventional and renewable energy sources will be critically discussed from the point of view of an electrical engineer.

The general answer to the addressed questions is that the electric car doesn't save either energy or the environment. It is more a political, business and media hype than an economical solution.





Dr. Peter Magyar (IEEE M'91, SM'04, F'07) received the Dipl. eng. and the Dr. tech. degrees from the Budapest University of Technology, Hungary, in 1967 and 1975, respectively. From 1967 to 1991, he was with the Department of Automation of the same university as an assistant professor and a research associate. From 1982, he led the Laboratory of Microprocessor Controlled Drives of the same department. The profile of the laboratory was education and industrial research and development in the field of digitally controlled power electronics systems. Dr. Magyar has been author and co-author technical papers and books and filed more than 30 patents. His research interest focused on control and mathematical modelling of electrical drives and power converters.

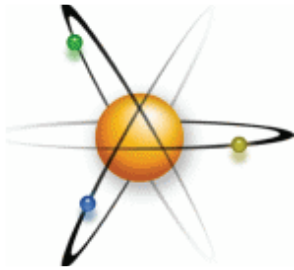
In 1981, he was recipient of the Alexander von Humboldt fellowship, Bonn, Germany, and spent a research year at the Braunschweig University of Technology, Germany. From 1991 to 2003, he was head of development power electronics and drives with Hanning-Works and with D-Tech Ltd., both Germany. Currently, he is retired from Hella KGaA Hueck&Co., Germany, where he was with the Advanced Development Department from 2004 to 2009. His working field has been control of electrical drives, car steering control and automatic car parking manoeuvre systems. He is working as consultant in the field of electric cars and electrical drives. He has been expert evaluator of the European Commission.

Dr. Magyar has been member of the Hungarian Association of Electrical Engineering and of the IEEE Societies CS, IA, IE, PEL and PE as well as the IAS Technical Committees Industrial Drives and Industrial Power Converter. He is recipient of the IAS Distinguished Service Award 2006, and has been elected to the grade of IEEE Fellow for contributions to digital control of electrical drive systems.

Dr. Magyar has been IEEE volunteer in various positions. In the Germany Section, he was secretary, vice chair and chair of the IAS/PELS/IES German Chapter, chapter coordinator and nominations and appointments officer of the Section's Executive Committee. In the R8 Committee, he was Division II representative and chair of the R8 Chapter Coordination Subcommittee. In the IA-Society, he was IAS chapters area chair R8 East & South, member of the IAS Executive Board as member-at-large and chair of the Inter Society Cooperation Committee. At IEEE TAB, he was member of the IEEE TAB Nominations & Appointments Committee. Currently, he is chair of the IEEE IAS Chapters and Membership Development Department (<http://ias.ieee.org/chapters-a-membership.html>) and IAS liaison of the R8 Chapter Coordination Subcommittee (www.ieee.org/go/r8chapters), and European editor of the IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE).

THE HISTORY OF THE ATOMIC THEORY AND ITS GREEK ORIGIN

by Christina Panagiota. Malliou, DUTh SB IAS Chapter Chair



The atomic theory, the theory of the structure, of the properties and the behaviour of atoms, needed more than 2500 years to evolve. While many great scientists such as Schrödinger, Einstein, Bohr and Rutherford contributed to the formation of modern atomic theory, the first reports come from Ancient Greece. The ancient Greek philosophers were the first to theorize about microstructure, or the idea that matter is made up of smaller pieces such as atoms. In general, the early Greek theories connected the physical world with the spiritual world. By modern standards, these theories are indistinct and vague, but they were groundbreaking ideas for that era. Known as atomists, these early philosophers helped pave the way for modern science.

Introduction to modern atomic theory

To make it easier to understand we are going to use a very common example. We have all played with Lego when we were younger. Let's say now that we have made a beautiful car out of Lego pieces. If we start breaking down this car we will end up having the car roof, the doors, the windows etc. But we are still able to break it just a little bit more until we have only the Lego pieces that we can use again to create something new. Here comes the question: "Is this possible in nature too?" The answer to that question is coming from the atomic theory.



In simple words the atomic theory states that all matter is made from very small particles, the atoms. The atoms retain the properties of the element from which they come from, just like the Lego pieces we have mentioned before and they cannot be divided using chemicals. Even though atoms cannot be divided with chemicals, they do have smaller parts. Those parts are the protons, the neutrons, and the electrons but the atoms are the basic block of matter. But how did this theory was born?

The first concept of the atomic theory

While the ancient Greek philosopher Heraclitus used to say that everything is in a state of flux, that nothing escapes change of some sort and the Greek philosopher Parmenides argued that everything is what it is, so that it cannot become something else, in about 400 B.C. an ingenious Greek philosopher and scientist Democritus from Avdira, a city near Xanthi, and his teacher and philosopher Leucippus of Miletus gave a different perspective and an escape from those theories.



Democritus raised the term atoms. That term comes from the Greek word «ἄτομος» which means “something that cannot be divided, something uncuttable” and it is a compound word from the prefix «ἄ-» that means “not” and the verb «τέμνω» that means “cut”. Democritus thought that atoms are the building block of nature and that they could not be created or destroyed. He also believed that all atoms have different structure, different shape and different size. As he said, “They (the atoms) have all sorts of shapes and appearances and different sizes. Some are rough, some hook-shaped, some concave, some convex and some have other innumerable variations”. For example, he imagined that any white object was made of smooth atoms, while any black object was made of more rough atoms, that the atoms of water were smooth and slippery,

while the atoms of salt, due to its taste, were sharp and pointed. Later, he stated that the density was a form of tightly packed atoms and he thought that they are bounded to each other mechanically. Last but not least, he said that the universe was made of the perpetual motion of atoms; he was after all the first who claimed that the Galaxy, from the Greek word «γαλαξίας» which could be translated as “milky”, consisted of distant stars.

As it happens with almost every new, innovative and breakthrough idea, there are disputes and misconceptions. The ancient Greek philosopher Aristotle had a different opinion and he fiercely attacked Democritus's theory. He believed that it is impossible for atoms to exist since air did not fall to the ground like any other object. He thought that there were four basic elements (air, fire, earth and water) and that their various combinations form every kind of matter. Due to Aristotle's popularity and the fact that Democritus was not largely known in Athens, his theories were overshadowed for many years. The philosopher after Democritus focused more on the cultural and the spiritual aspects of philosophy rather than what could be described as modern science.

From ancient Greece to the modern science

Modern scientists, starting with Newton, have proved Democritus mostly correct. However, today we know that space can exist without matter, that there are particles even smaller than the atoms such as neutrons, electron and protons, that the atoms are not mechanically bounded and that they interact via electric and magnetic force fields. The revolutionary thoughts of Democritus that matter is composed of tiny particles moving in a void is accepted today as the basis for modern atomic theory but it was not until the 19th century that modern scientist began to reconsider the theory of Democritus. Science evolved a lot since Democritus first proposed his theory, although because of his conception he is considered by many the father of modern science.

SBC MADRID 2012

by Makrma Sekeri



To the SBC Madrid Conference I had the honor of being **the representative of the IAS Chapter in Xanthi, Thrace, Greece**, in addition to my presence there as the secretary of the IEEE SB of Thrace. Thus, in a few words, I would like to give you a short report of this very useful Conference and thank you for your trust in me being your representative.



By the first day there **we got to meet with so many interesting people from all around the world**: USA, Saudi Arabia, Egypt, Portugal, Turkey, Spain (as the main organizer), Lebanon, Jordan, Italy, UK, and so many more. We exchanged thoughts, aspirations and we got to understand the cultural differences and ideas. At night, in the **Welcoming Party**, I was able to meet with **Mr. Magyar** as well, who encouraged me to be prepared for a short presentation (which I had made before I left for the Conference and which you can find on our site). Unfortunately, due to lack of time I wasn't able to present it.



On the second and the third day, we attended almost all **sessions with seminars and workshops**. During that period, I gained some basic knowledge on **Biomechanics and Biomedicine** by attending 2 seminars for:

CONFERENCES

the technology of the MRIs and CT Scans and the difference appearing by how a healthy brain sends signals comparing to the way of a brain suffering the causes of Alzheimer's.



Another two seminars, one on **IEEE EPICS program for promoting ideas and realizing them as projects for students my age** and one more on **IEEE e-Library from the "Education" Sector** were very interesting. At night, there was the Gala Dinner, where I was introduced to the other IAS Chapter members. While the next night we attended the **"Multicultural Dinner"**. There as part of the Greek team, among all the other countries, we managed to cook traditional food and taste some of the other countries delicacies.



On the fourth day, we visited and attended **workshops at the city of San Lorenzo**. That day I gained experience on **how to take a job interview, how to evaluate in an interview and how to be interviewed**. Later on we had a city game for sightseeing and later on the afternoon the organizers took us out on the countryside where we had paella and other Spanish traditional food.



Last day, in the morning we were able to listen to a **presentation by Mr. Peter Magyar** about IAS who in the end called all the representatives of the newly founded IAS Chapters on the floor to be introduced. Afterwards, all the IAS members, we exchanged contact info and after saying goodbye, I rushed to catch my plane for home.



During this trip I got to meet and handshake with **Mr. Gordon, the head president of the IEEE** and I exchanged contact information with the other newly founded IAS Chapters and SBs.



Also, we paid a visit to **esa (the European space academy agency)** where we saw a short documentary and some real and old space satellites that were explained to us both in operation as in technology.



All in all, I can say that I have gained a **unique experience** both in skill and knowledge through the various **sessions, workshops and speeches**, as well as in interacting with peers and career men/women from the IEEE's several regions.

I had the opportunity to **meet with people that care and dare to make a change**; people who try to find new, innovative and useful for us - University Students studying Electrical Engineering and Computer Engineering - programs to attain in order to become more **carrier material, open-minded and be ready to realize our ideas**. Not to mention that new doors opened, as associates from there stated that they will be there for us as long as we are active volunteers and we are ready to carry through **with our ideas and projects**. Last but not least, this Conference helped a great deal in **establishing good relations with the rest Student Branches and IAS Chapters!**

I am hoping for every member in our Chapter to get the opportunity to experience!!!



IAS ANNUAL MEETING 2012

by Grigoria Drosou and
Anastasios Filippou

Through this report we would like to give you some information about our schedule during the extraordinary **IAS Annual Meeting 2012**. This trip and our presence was a **unique experience**. We had the chance to **meet new people and to establish great relationship** with Bachelor and Master Degree students, we met **distinguished engineers, scientists and professors in the field of technology**. We had also the chance to visit the magical city of Las Vegas.

Our unique experience started on Saturday, October 6.



We took our breakfast in the hotel with **Dr. Magyar** and our **new friends from India, Saudi Arabia and Bahrain**. In the evening we participated to the dinner where we had the chance to **meet the representatives from all Chapters**. During this dinner, a mini **contest was held with presentations from the countries and the cities where Chapters are**. In that contest **Greece and Xanthi won the second prize, scored by the presenters**.

On Sunday, October 7 there was a trip to **Colorado river Hoover Dam Power Station**, which left speechless. Afterwards, we visited the **artificial lake** created by the dam and we end up to the **m&m chocolate factory**. That evening we attended the **student poster session** with the winners of the year.



On Monday, October 8 we had the chance to attend a **presentation by Dr. Wood** (The keynote presentation, by Dr. H. John Wood, **the Optics Lead Engineer for the Hubble Space Telescope from the NASA Goddard Space Flight Center**) who informed us about the Hubble program and explained us the **actions that need to be done to repair a fault during the time that the telescope is in the space.**

On Tuesday, October 9 we had a day full with **workshops**. During this day,

we attended the **presentations of IAS officers** and their projects through the year, the chapter and membership development report, **the presentations from the chapter representatives** with the progress they have made from their foundation, their activities (through photographic material) and last but not least **Dr. Magyar's speech concerning the women engineers and the treatment that they get all over the world.**

In addition to this, we had the chance to hear the opinion from **the representative from the Bahrain Chapter** that the condition in her country is increased.

On Wednesday, October 10 the **Student technical session** took place. During this session there was **a thorough presentation of the work of competitions by the representatives from various chapters** that were involved.



We should highlight that during the Annual Meeting 2012, from October 7 to October 11, we had the chance to **attend presentations of highly innovative projects and researches from distinguished scientists and engineers in the field of electrical and computer engineering.**

GETTING CONNECTED, ESTABLISHING RELATIONS

by Pamagiotis Katsanos

Since relationships are the building blocks for all community organizing activities, one of our chapter's primary aims is to get connected with IAS chapters from other countries and initiate the necessary communication among their members. Being a network means strong cooperation between the chapters. Indeed, many IAS chapters actively collaborate in various projects e.g. trips, workshops, trainings, and other activities. Some of the chapters that collaborate on a regular basis can create a section partnership. There are benefits of a partnership between sections from different countries such as:

- Exchange knowledge between the members
- Learn practical experiences from each other
- Organize common events
- Invite each other to local activities
- Support each other
- Meet new friends
- Travel abroad and meet new cultures

For instance, the chance to work as a part of a multinational team can be a lifetime experience. Or take advantage of the opportunity to meet and communicate with people of a total different cultural background. Moreover, through cooperation, the members can learn about new technologies and their applications in industry, meet scientists and professionals from many different areas of expertise, while on the same time being able to exchange knowledge and ideas and gain important experiences.

To sum up, the relationships we have are the means for achieving our goals. That's why cooperation between chapters from different countries can be a tool for further development and involvement.

UNIVERSITY OF LEUVEN

SBC

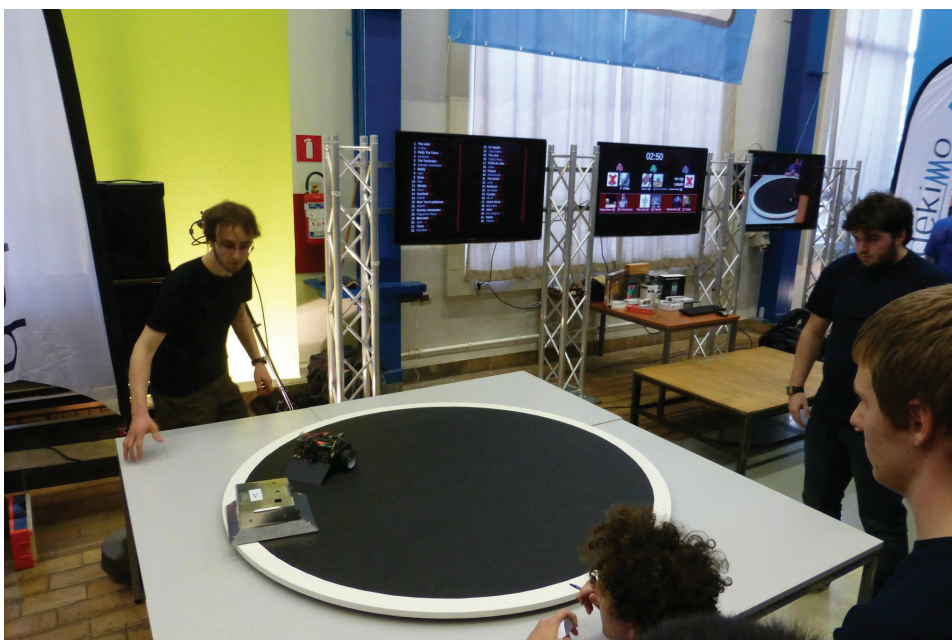
by Frederik Geth

On 28 September 2012, the **Joint Industry Applications Society - Industrial Electronics Society Student Branch Chapter at the University of Leuven (Leuven, Belgium)** was formed. The current chapter chair is PhD student **Frederik Geth** and the advisor is professor **Johan Driesen**.



The chapter offers its members the opportunity to co-operate **more technically** focused than through the normal student branch platform. Since its foundation, a range of activities has been organized.

During the first semester of the academic year 2012-2013, a series of **workshops** were organized on how to build a **robot platform from scratch**. The common aim is creating a robot for a robot-sumo competition on November 26. During the course of that evening, 7 teams competed and about 80 people showed up to cheer for the teams. A ceremony was held to recognize the efforts of the teams. In the sec-



ond semester, follow-up sessions were organized to help teams improve their robots.

Eventually, April 30 they participated in the **national sumo competition** organized by the Gent student branch, where one Leuven team ended up at the 5th place.



Moreover, workshops were organized to familiarize students with the capabilities of the **arduino microcontroller**. A first session focused on building a **smart phone controllable home automation system**. During the second workshop, an arduino-based gaming platform was built.

Furthermore, the IAS-IES Student Branch chapter, in cooperation with the student branch, organized a “Soirée Technique” technical lecture on **grid-connected vehicles** on 28 November. The lecture was open to anyone with a technical interest in electric mobility and the interaction with the power system. The speakers were professor **Johan Driesen** (University of Leuven), **Luc Vinckx** (General Motors), **Johan Peeters** (ABB) and **Jan-Willem Rombouts** (Restore). A reception was offered afterwards to celebrate the formation of the joint IAS-IES chapter. A little more than 100 engineers attended the event.

<http://www.ieee-sb-leuven.be/about/oursocaff/ias-ies>



UNIVERSITY OF SARAJEVO

SBC

by Bojan Nikolic



IAS Student Branch Chapter, University of Sarajevo, Sarajevo, Bosnia and Herzegovina was formed in 2012. In the first year we have **20 members** and this year that number is even increased. Our members are mostly students of the Bachelor and Master Program of the **Power Engineering**, but also from the other programs of the Faculty of Electrical Engineering, University of Sarajevo.

We have organized and also planning to organize in the future different **courses** and **workshops** for our members. For example how to **write CV, motivation letter**, how to do an **interview** with an employer, how to **be focused on things** that you really want. These are the first things that our students will need when they will be looking for the job and they **can't learn it at the faculty**. The courses and workshops were lead by the **professionals from these fields**.



Also, we are organizing courses of **technical English**, **workshops about the use of some professional computer programs** in the local companies, **negotiating some local discounts for our members** etc.



Our students hope that we will have even **more activities** in the future and they are **open for any kind of national and international cooperation**.

UNIVERSITY OF ZAGREB

SBC by Tea Krstamovic



The vision of the **Industry Applications Society** and so our department has precedence in technology development and dissemination of technical knowledge in the field of electrical engineering support engineers who apply them in the industry.

What distinguishes the Department of industrial applications aspiration is approaching as many academic and industrial world. In this direction, our student Department contributes to informing, teaching and connecting students and professionals in electrical engineering.

Shortly after its establishment, the Department has introduced to **Congress student branches and GOLD stakeholders Region 8**, which was held in Madrid on 25-30 July 2012th.



R8 SBC IAS representatives



We have become aware that the whole world says one professional language and faces the same engineering problems. Creativity, open-mindedness, learning and knowledge sharing common is our way of problem solving and the development of technology.

Our members have participated in the **celebration of IEEE day**, we also had representatives at the **famous IEEE Xtreme**.

In the week of 15th to 17th November IEEE student branch of Zagreb and Department of industrial applications participated in **Info 2012**, the fair information technology. We had the opportunity to present our association and socialize with Croatian experts in information technology.

Members like to participate in the **Congress of the Croatian section**. These congresses are a great opportunity to share ideas and activities with the nearest branches.



How to demonstrate to the students the real problems that are described in the books, we organize **visits to companies**. One of them was a visit to the **Institute of Nuclear Technology - Inetec**. Students had the opportunity to see one of the Croatian centers of knowledge and high technology. We listened and see what it looks like the process of designing, development and produc-

tion of specially designed manipulator for testing conditions of reactor vessels in nuclear power plants.

In **Twin Branch program**, we also have participated in **ROBOMAC** in Skopje, Macedonia. Robomac is workshop/lectures where we met with the basic applications and programming small robots, and demonstrated our creativity and ideas.

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS SBC

by Tibor Fazekas

The **IEEE Budapest University of Technology & Economics Joint Student Branch Chapter of the Industry Applications and the Power & Energy Societies** is the student chapter of the leading energy related student organization in Hungary (Student Association of Energy). Most of our members are **outstanding energy and electric power engineering students** of the Budapest University of Technology and Economics. Our scope is the **education of our members beyond university curriculum by conferences, lectures, forums, workshops, factory visits and summer practice programs**. Furthermore, we are proud of our social responsibility activities, like providing genuine **information about energy to the public** or **organizing a yearly energy contest** for secondary school students.

Since 2007 the Student Branch Chapter organizes biannually the **International Youth Conference on Energy**, an event for young scientists fully organized like any adult conference. The IYCE 2009, 2011 and 2013 is technically **co-sponsored by the IEEE Industry Application and the Power & Energy Societies**.





Our Chapter is organizing **lectures, panel discussions and technical visits every week**, to provide an opportunity for all the people interested to **get acquainted with the views of experienced and practicing professionals**. The lecturers invited are **great authorities of their field**, and are **up-to-date with technical developments and economic trends**.

About two-third of the participants of these events are students of the Budapest University of Technology and Economics, however, our programs are **free and open for everyone**.



AN NAJAH NATIONAL UNIVERSITY SBC

by Hala Barham



Mission

Serving Industry and the Engineering Profession for over 100 years

IAS Najah Student Chapter started at An-Najah National University in 2012, Najah - SB established the Najah - IAS chapter by Eng. Mohammed Al-Donbok. Hussam Malhis represented IAS Najah chapter in Madrid Congress in August 2012. Nooraldin Muala & Ahmad Saqfalhait Represented our Chapter in IAS Annual Meeting in Las Vegas 7-11 October 2012. We have now **50 active Members**. Student Specializations: Industrial Engineering (Majority), Mechanical Engineering, Telecommunications Engineering, Electrical Engineering, Computer Engineering.



First Public Meeting

In 29/1/2013, Engineering collage had the founding ceremony of Industry Applications society (IAS). It was held in the first of current semester in the presence of IEEE and IAS members, doctors from different facilities, few companies, more than 250 engineering students and IEEE branches in Birzeit and Khudori. It was Sponsored by PalKarm company.

IAS In Royal Industrial Trading Company

The main purpose from this visit was to recognize the techniques used in the factory and to know the company's products. There were 130 student involved. This visit made all of us being proud of our national industries.

A trip to the city of RAWABI

The trip Included 100 volunteers and student

IAS visits NBC / Ramallah (National Beverage Company)

The trip Included 100 volunteers and student. The visit included a meeting in which the company showed its vision and the products and services that it produced. Then the group made a tour inside the production lines.



First Annual Meeting

IAS Najah Student Branch First Annual Meeting was held in 4/5/2013. All IEEE and IAS members were attended. Some Companies and societies came to the meeting. There was a group of paragraphs, events which the branch carried out during the semester were presented, also included a mention of all the companies that provided moral and material support of the branch and a new chairman was elected for IAS.



Main Activities	Secondary activities	Time line										KPI	Expected achievement	Actual achievement
		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth			
Honoring IAS founders	Through IAS introduction conference		✓									Appreciation shield for Eng. M. Al-Dorobuk	100%	
Experiences sharing	During the whole semester	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	reach to excellent performance in record time	80%	
Teams Building	Regular meetings for members	✓		✓								volunteers feeling of satisfaction and their participation in the work	100%	
Planning Self-confidence activities	Workshops in partnerships with local NGOs and the university						✓	✓				Increase students' self-confidence and volunteering in the chapter	65%	
Increasing memberships and renewing current members	First public meeting and making special discounts	✓										Increase the number of members by 300%	80%	

News about Society's tour in the Media: a group of engineering student from an-najah national university saw the plans of Rawabi (the name of new modern city under constructing)





Xanthi is a Thracian town in the **North-ern part of Greece**, capital city of the homonymous Prefecture. Built on the foothills of Rodopi mountain range, at the beginning of a valley which expands towards south to the Thracian Sea. It is the **commercial and spiritual centre** of the region and one of its characteristics is its **multicultural aspect** as well as the **harmonically co-existence of both the Christians and the Muslims**. The famous in all over the world aromatic tobacco called Mpasmas is produced in the region of Xanthi. The tobacco stores which are preserved until today are characterized as **architectural behemoths**. The contemporary town is a **pole of attraction** for everyday life. In earlier days Xanthi was called as the “**arxontisa**” (**noble woman**). Today, it is called as **the Town of thousands of colours**.

The Old Town of Xanthi, located in the heart of Xanthi, is a **unique place, a magical town, an “outdoor museum” with traditional, colourful mansions, the glory of which remains untouched through the years, and beautiful paved streets that travel us back in time**. It is a valuable cultural chapter for the contemporary town and generally for the region of Thrace. In the Old Town there are **12000 buildings characterized as listed**. From these, 140 are characterized as **having of great value**, 130 **valuable**, 260 are characterized **interesting**.

Since 1991, **Xanthi’s Old Town Festival** takes place at the beginning of autumn. **The festival programme is rich:** concerts of famous and local artists, theatrical plays, art and photography exhibitions, book fairs as well as parallel events excite different kind of interests. Apart from Xanthi’s Old Town festival there is also the **Carnival**, the **Youth Festival** and the **Manos Chatzidakis Festival**.