Diploma

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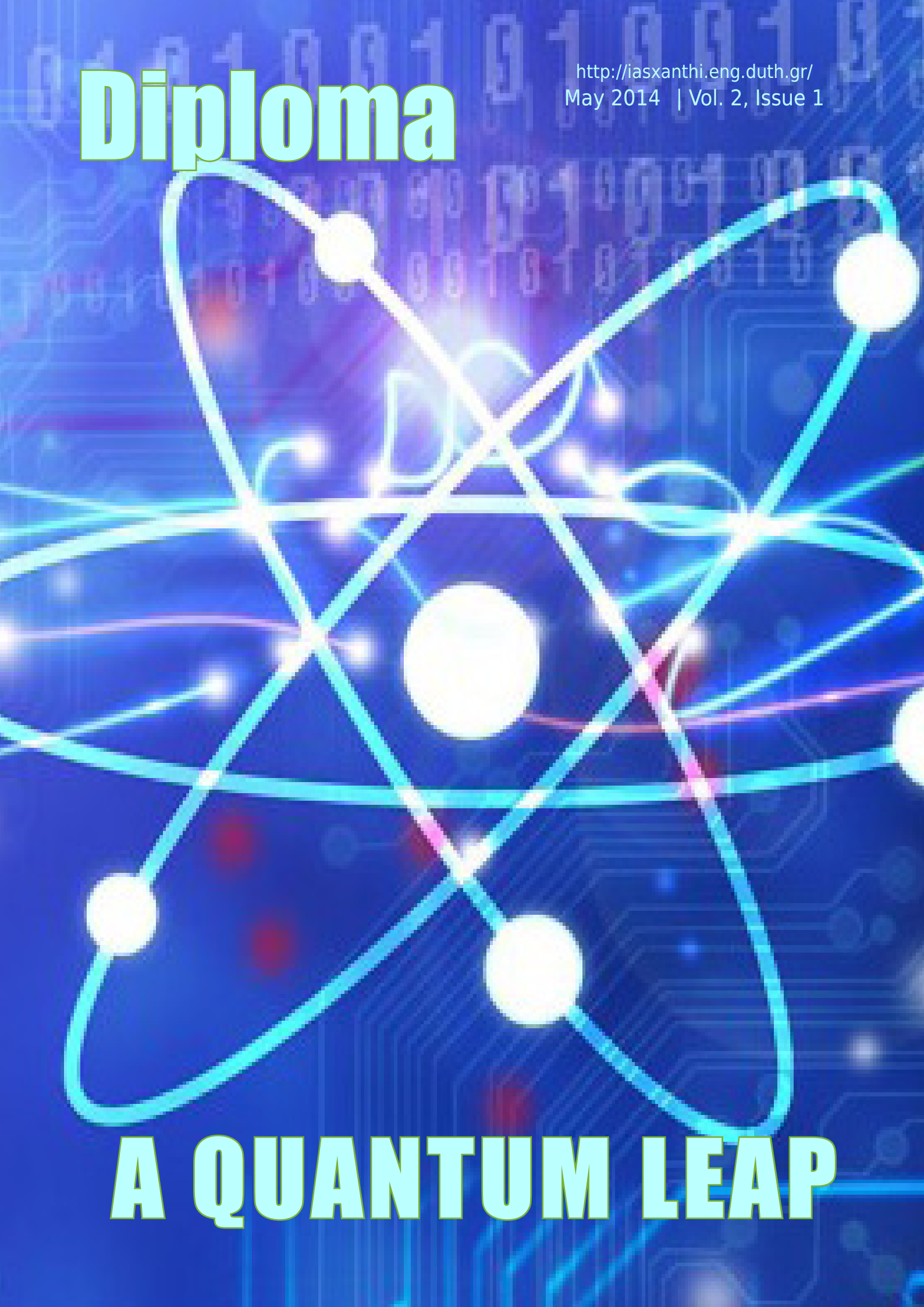

A QUANTUM LEAP

Democritus **I**ndustrial Ap**PL**icati**O**ns **MA**gazine

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Industry Applications Society

SBC·DUTH

ias

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 third issue of our Chapter's Magazine (first of the second Volume).

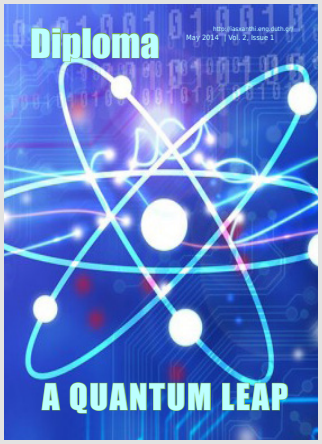
New and very interesting articles are presented and new writers are participating, showing the will of our students to volunteer in this difficult task. The Student Branch Chapter continues its numerous activities, by inspiring more and more of our students to become members. Take some moments of your time to read the journal and make your helpful comments to the editors in order to help them improve, if needed, the quality of the articles or the journal in general. Please focus on the feedback from other similar chapters all over the world and consider the importance of getting in touch and of exchanging ideas and information with other students – potential engineers from various educational institutions.

Prof. Athanasios Karlis

Chapter's Advisor

ON THE COVER: A Quantum Leap

DIPLOMA



Coverstory:
A Quantum Leap

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THE IMPORTANCE OF A WEBSITE

by Christos Pnevmatikos, DUTh SB IAS Chapter Webmaster

In the era of communication and fast travelling information with the touch of a button, it is only reasonable for every organization respecting itself to maintain a website where everyone can access the information and knowledge they can provide.

As a result of this it was clear for us from the beginning that a website, which will contain our basic information plus our activities and everything that we would like to share with the rest of world, should be developed. Furthermore we desired to develop a website that would be both useful and convenient and in order to achieve that goal we were prepared to translate our site to a variety of languages such as English, German and Italian to make it possible for almost everyone to contact us and cooperate with us.

What is more we wanted to give the opportunity to all visitors of the site to know a few things about Xanthi and our University, other than our chapter so we included the About tab. As for the other tabs we tried to organize better our Newsfeed with the News tab including announcements, awards and the versions of our magazine there. Moreover we have the Membership tab where everyone can join our chapter either by signing up through the online or printable application form. In addition to this in the Gallery tab the visitor can browse through our memories from a variety of photographs from different places. Last but not least there is the contact tab where basic information about our chapter roster can be found. In the end I want to personal thank two of our chapter members for their help to the fulfillment of this website, Paschalis Pelitaris who has given me many advises about the correct structure of a website and java scripts and Christina Panagiota Malliou with her artistic view and point of aspect. With their contribution our chapter won the 1st price award at the chapter web contest 2013 and hopefully 2014.

MEMBERSHIP DEVELOPMENT

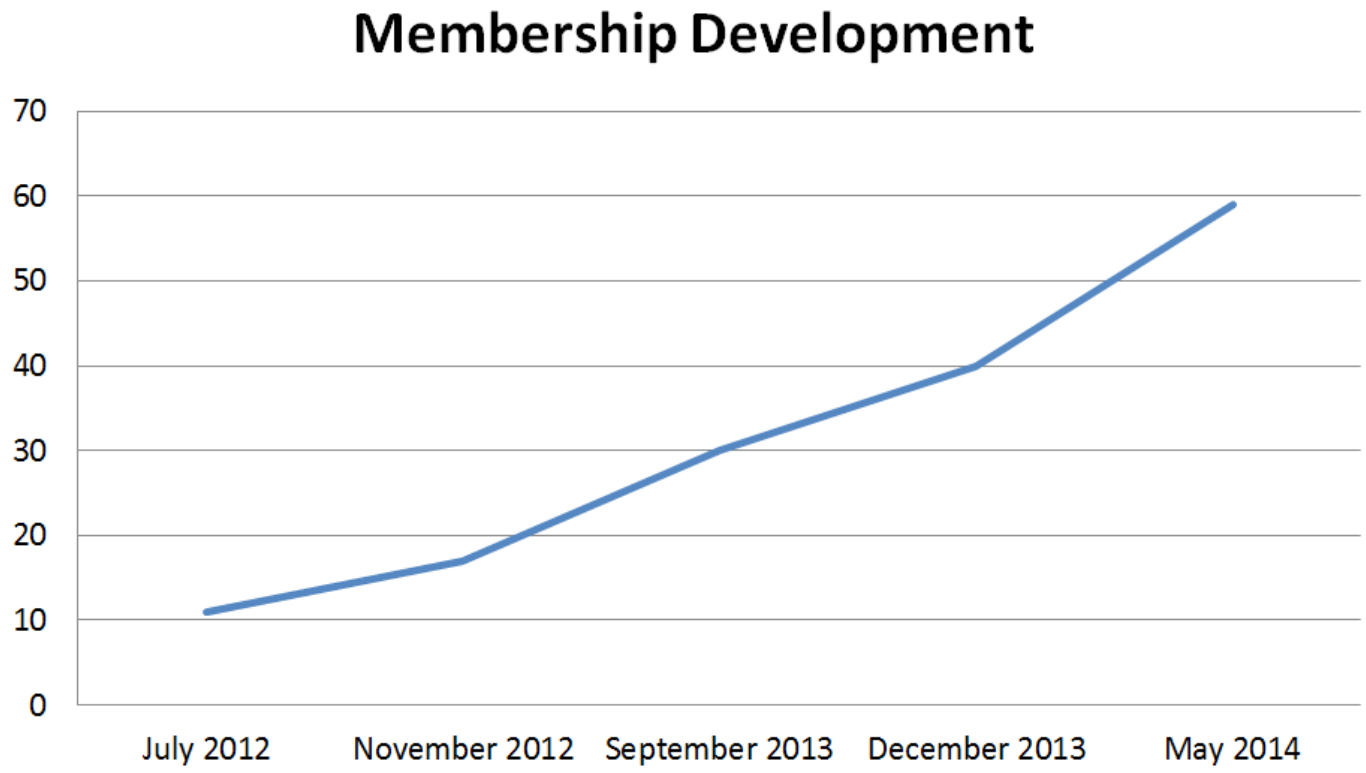
by Christina Panagiota Malliou, DUTh SB IAS Chapter P.R. Manager

Our chapter was founded almost two years ago, on July 9th 2012, starting with eleven members, eleven students of Democritus university of Thrace motivated by Dr. Magyar's and Dr. Halpin's inspirational speech.

During those two years the members of our chapter keep increasing. The first year we managed to triple the number of our members. On November 2012 our chapter was counting 17 members while on September 2013 we were counting 30 members. The number of our members continued to grow rapidly and three months after that, on December 2013 we had reached 40 members. Currently, we are proud to announce that we have 59 members that rank us among the top IAS membership countries.

ABOUT US

From our inauguration we try to be as active as possible. We have organized numerous activities, lectures, web seminars and academic visits. That continuous effort to link our chapter to the industry the best way we can, led more students of our University not only to become members of our chapter, but to volunteer and to get involved more actively in order to create a better future for all of us.



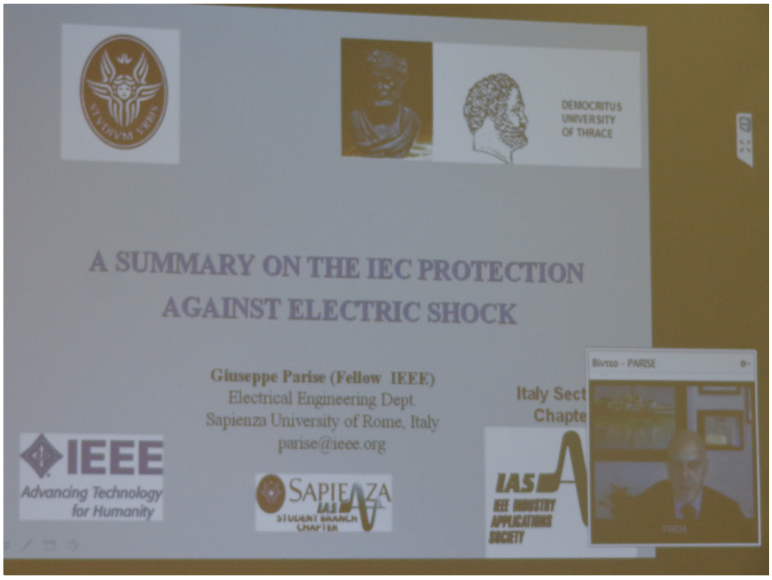
Based on the data of IEEE Student Branch of Thrace, on June 2013 our members were 30% of the total IEEE S.B. members.

We would like to thank our members, our driving force to continue our efforts; our board for their passion and dedication and of course our advisor, Assistant Professor Athanasios Karlis for his support and valuable help in every step towards success.

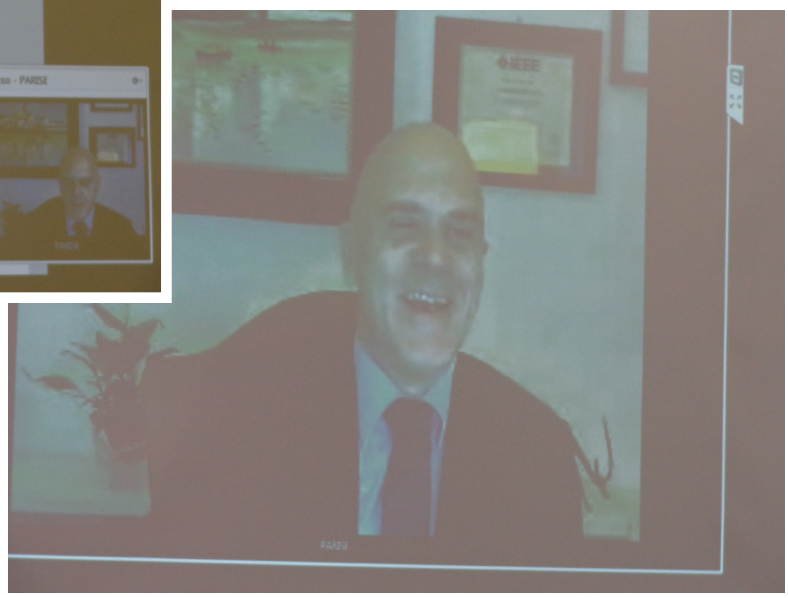
IAS DUTH SBC ACTIVITIES

by Galimi Kondyli, DUTh SB IAS Chapter Chair

Our first event for 2014 took place on **January 9th**. Our Student Branch Chapter organized a **web seminar** by **Prof. Ing. Giuseppe Parise** about "**A summary on the IEC protection against electric shock"** in cooperation with the Electrical Machines Laboratory and the Division of Software of the Department of Electrical and Computer Engineering. The web seminar took place in the Laboratory of the Division of Software. **Prof. Parise made an excellent presentation on power-system protection, the grounding systems and the IEC publications**, which was very interesting. The terms were presented in an explanatory way. The attendees reported it was a **great presentation that intrigued them to learn more about the topic**.



"A summary on the IEC protection against electric shock" by Prof. Ing. Guiseppe Parise



ABOUT US

After a reasonable break in our actions due to the exam period, we started planning events for the spring semester.

On March 7th, 2014 we visited the **Dam of Thisavros** and its **Hydroelectric Power Plant**. Some of the employees of the power plant **guided us to the facilities and explained to us how this type of power plant generates power**. We visited **the underground station and the control room**. We learned about **the process and the difficulties concerning the construction of such a power plant and a dam**. The stuff distributed to us **leaflets about the technical characteristics** of Thisavros Dam and the Hydroelectric Power Plant. It was an **informative experience to actuallylook at the systems we are studying at the university.**

Dam of Thisavros and its Hydroelectric Power Plant

On March 10th, we had the honor to organize a **lecture by Mr. Christos Giordamlis on "Entrepreneurship in Greece 2014"**. Mr. Giordamlis is the **Chief Executive Officer of Prisma Electronics since 1996.** He made a presentation about **Prisma Electronics and its products, emphasizing its great success even in the period of the economical crisis**. He also mentioned the **difficulties in founding a new company and running it responsibly.**

Lecture by Mr. Christos Giordamlis on "Entrepreneurship in Greece 2014"

ABOUT US

After the success of the lecture by Mr. Giordamlis, we planned an **academic visit to Prisma Electronics in Alexandroupoli**. Our students got the chance to **watch the employees while working** and **experience firsthand a production line**. The stuff showed us the products they are currently manufacturing. They underlined that **making accurate products and having a 0% failure rate has made them successful** and has ensured them collaborations with respectable corporations and maritime companies throughout the world, such as the **CERN center of scientific research**. **We were really amazed by the development path of Prisma Electronics.**

Academic visit to Prisma Electronics in Alexandroupoli

WHAT'S NEXT?

by Galimi Kondyli, DUTh SB IAS Chapter Chair

We have some **more events planned** for the semester to come and **numerous ideas for activities!**

After the success of the **web seminar given by Prof. Ing. Parise,** we are planning to organize **web seminars by respectable lectures regularly,** so that our students can learn about **all aspects of electrical engineering and industry applications** without having to leave our university, **establishing a connection with other universities and student branch chapters around world**.

We are organizing **a lecture on Internet safety and the laws that apply in internet** by professors of both our department and the faculty of Law of our university, to alarm our students about the dangers of internet and the computer and present the legal aspects of this matter.

After the inspiration of the Annual Meeting and the motivation by the IAS, some of our student members have formed groups and are currently **working on projects to present to the Annual Meeting** and submit them for the Myron Zucker Design Contest.

Regarding our environmental awareness, **we are planning a tree planning at our university in order to improve and beautify the environment** in which we spend most of our time.

Our Student Branch Chapter is also planning to **invite to our university some other local companies and industries that are successful in their fields to present their development course.**

Stay tuned!

A QUANTUM LEAP

by Antonios Glioumpas, DUTh SB IAS Chapter Design Team Manager

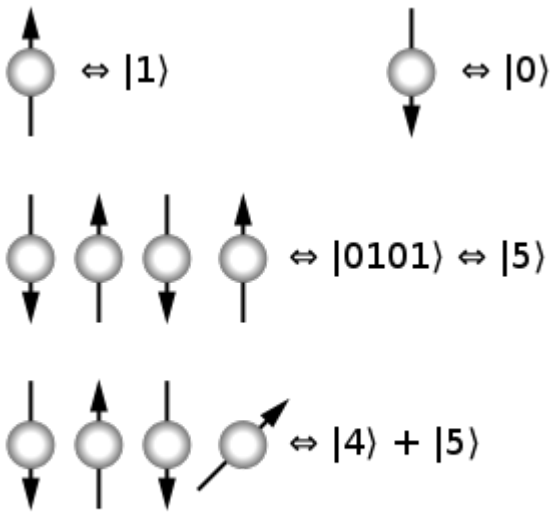
The massive amount of processing power generated by computer manufacturers has not yet been able to quench our thirst for speed and computing capacity.

Will we ever have the amount of computing power we need or want? If, as **Moore's Law** states, the number of transistors on a microprocessor continues to double every 18 months, the year 2020 or 2030 will find the circuits on a microprocessor measured on an atomic scale. And the logical next step will be to create **quantum computers**, which will harness the power of atoms and molecules to perform memory and processing tasks. Quantum computers have the potential to perform certain calculations significantly faster than any silicon-based computer.

Scientists have already built basic quantum computers that can perform certain calculations; but a practical quantum computer is still years away.

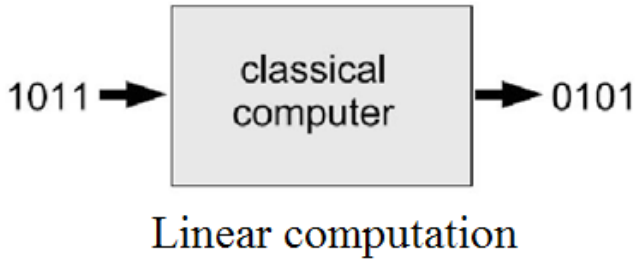
You don't have to go back too far to find the origins of quantum computing. While computers have been around for the majority of the 20th century, quantum computing was first theorized less than 30 years ago, by a physicist at the Argonne National Laboratory. **Paul Benioff** is credited with first applying quantum theory to computers in 1981. Benioff theorized about creating a quantum Turing machine. Most digital computers, like the one you are using to read this article, are based on the **Turing Theory**.

Today's computers, like a Turing machine, work by manipulating bits that exist in one of two states: a 0 or a 1. Quantum computers aren't limited to two states; they encode information as quantum bits, or **qubits**, which can exist in superposition.

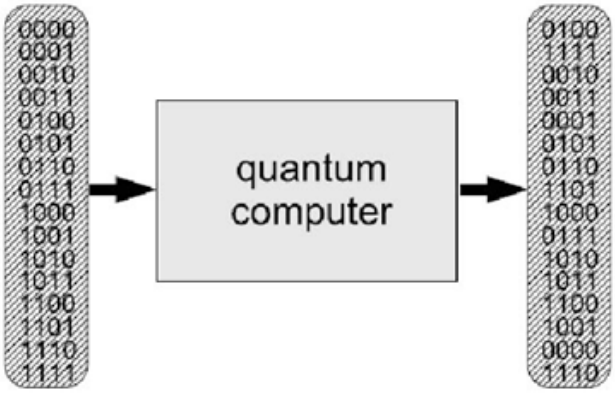


qubits can be in a superposition of all the clasically allowed states

Qubits represent atoms, ions, photons or electrons and their respective control devices that are working together to act as computer memory and a processor. Because a quantum computer can contain these multiple states simultaneously, it has the potential to be millions of times more powerful than today's most powerful supercomputers.



Linear computation

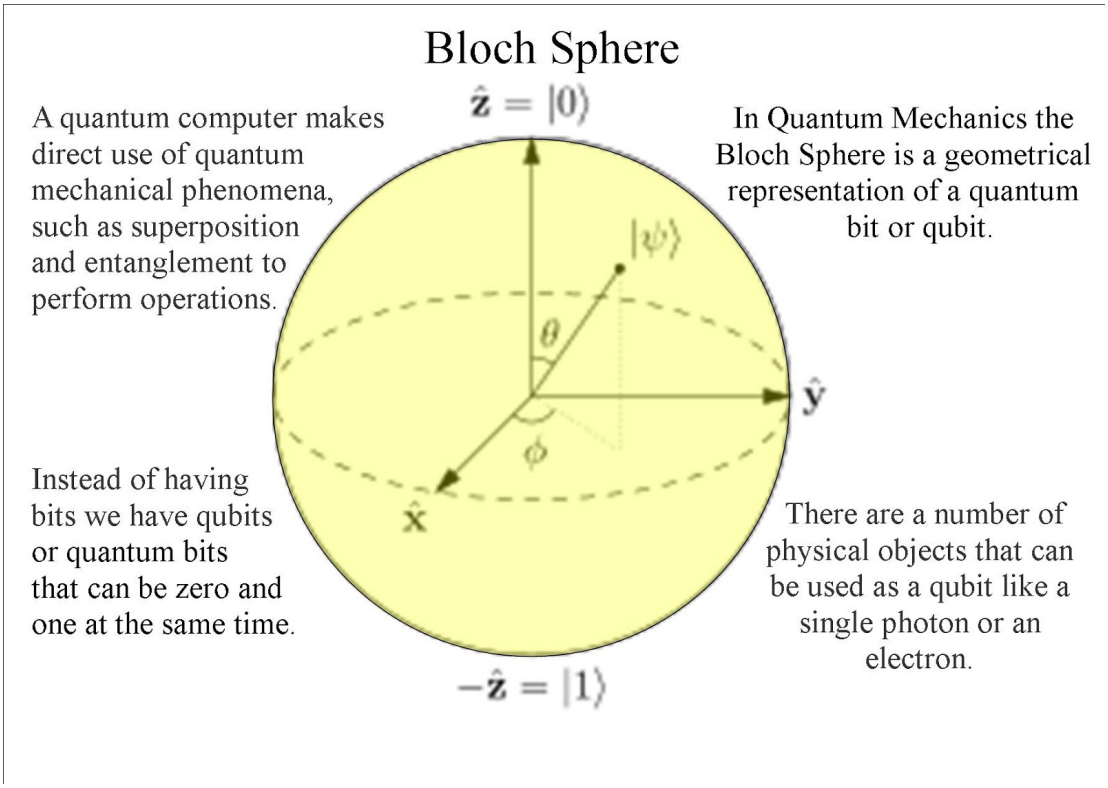


Parallel computation

This superposition of qubits is what gives quantum computers their inherent **parallelism**. According to physicist **David Deutsch**, this parallelism allows a quantum computer to work on a million computations at once, while your desktop PC works on one. A 30-qubit quantum computer would equal the processing power of a conventional computer that could run at 10 **teraflops** (trillions of floating-point operations per second). Today's typical desktop computers run at speeds measured in gigaflops (billions of floating-point operations per second).

Quantum computers could one day replace silicon chips, just like the transistor once replaced the vacuum tube. But for now, the technology required to develop such a quantum computer is beyond our reach. Most research in quantum computing is still very theoretical.

The most advanced quantum computers have not gone beyond manipulating more than 16 qubits, meaning that they are a far cry from practical application. However, the potential remains that quantum computers one day could perform, quickly and easily, calculations that are incredibly time-consuming on conventional computers. Several key advancements have been made in quantum computing in the last few years

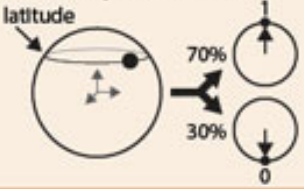


If functional quantum computers can be built, they will be valuable in factoring large numbers, and therefore extremely useful for decoding and encoding secret information. If one were to be built today, no information on the Internet would be safe. Our current methods of encryption are simple compared to the complicated methods possible in quantum computers. Quantum computers could also be used to search large databases in a fraction of the time that it would take a conventional computer. Other applications could include using quantum computers to study quantum mechanics, or even to design other quantum computers.

But quantum computing is still in its early stages of development, and many computer scientists believe the technology needed to create a practical quantum computer is years away. Quantum computers must have at least several dozen qubits to be able to solve real-world problems, and thus serve as a viable computing method.

A bit can have one of two states: 0 or 1. A qubit, the quantum version of a bit, has many more possible states, that can be represented by an arrow pointing to a location on the surface of a sphere. The north pole is equivalent to 1, the south pole to 0. The other locations are quantum superpositions of 0 and 1.

A qubit might seem to contain an infinite amount of information because its coordinates can encode an infinite sequence of digits. But the information in a qubit must be extracted via measurement and quantum mechanics requires that the result is always an ordinary bit, 0 or 1. The probability of each outcome depends on the qubit's 'latitude'.



SUCCESS STORIES OF WOMEN IN IEEE WIE ENIS AG SFAX, TUNISIA

by Sonda Bousnina

Over the time, Women showed an important role in the progress of science and society. This is due to their strong impact in these fields in addition to the support and the encouragement that they receive in order to achieve such progress. The IEEE Women in Engineering (WIE) is the largest international professional organization dedicated to promoting women engineers and scientists worldwide in order to engage and to encourage them.

The IEEE Tunisia Section WIE Affinity Group has been formed in August 3, 2009. And then, the WIE Student Affinity Group was established in ENIS (National School of Engineers of Sfax) on February 24, 2010.

The aim of these AGs creation is to meet the Female engineer's needs so as to be prompted and introduced to the world the fact that helps them to prepare themselves to the future and the local/global market.

These objectives were proven by many success stories in the international professional level of IEEE WIE AG members in Sfax Tunisia. Below, some examples of these succesfull achievements are mentioned:

IEEE Woman In Engineering Clementina Award for Region 8 (Europe, Africa and Middle East). London, March 2011

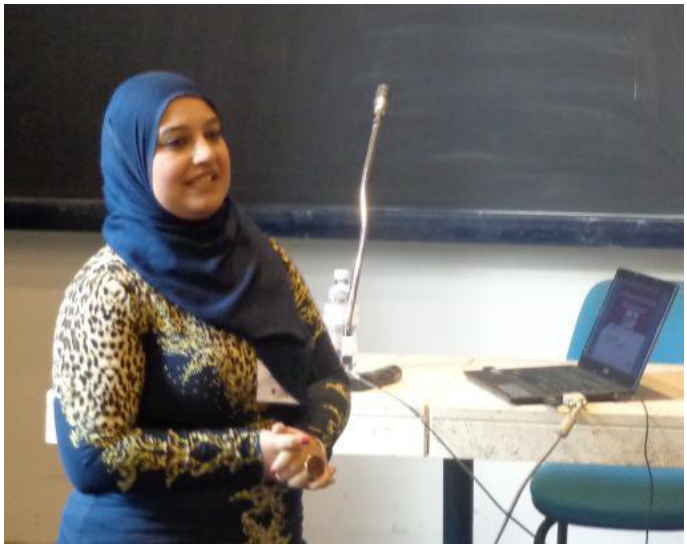
The winner of 2011 Clementina Saduwa Award was **Dr. Ilhem Kallel** from Tunisia for her professional and personal achievements. She can serve as a role model for combining professional achievements and family life.

The contest was having a great challenge between the contestants who show a very high level of achievements. The final decision of a jury composed of 5 members, was based on various aspects, not only CV but also statement, level of difficulties in achieving a professional career, reference letters, level of involvement of referees among others.

The 2013TechWomen Award, United States

Souad Benomrane, a PhD student in computer science from Tunisia, was a winner of the Techwomen award for the year 2013. TechWomen brings emerging women leaders in science, technology, engineering, and mathematics (STEM) from Africa and the Middle East together with their professional counterparts in the United States for a mentorship and exchange program. The aim of this last is to empower, connect, and support the next generation of women leaders by providing them access and opportunity to advance their careers, pursue their dreams, and become role models for women and girls in their communities.

The 2013Richard E Merwin Award and IEEE Computer society Ambassador in Region8 (Europe, Africa and Middle East)



Sonda Bousnina, a PhD student in computer science from Tunisia, received the 2013 Richard E Merwin award and she was selected as the IEEE Computer Society ambassador in Region8 for her academic excellence and her potential for strong leadership. The evaluations of the applications were based not only on the applicants successful academic career, but also the preparation to excel, as well as involvement in IEEE Computer Society related activities where applicable, and their vision for developing their respective local area region.

Every time a woman achieves such a goal, More women are encouraged to apply for. This fact, not only helps them to enhance their career plans as well as to be technologically professional while building their career but also it makes them capable to realize a vibrant community of IEEE women and men. Therefore, both of them will be innovating the world of tomorrow by using their diverse talents.

Aside these awards, since the launch of WIE ENIS AG, the members have been active and enthusiastic. Indeed, they have organized and participated to several activities, workshops and conferences in the scientific and social fields. These lasts were in collaboration with the different IEEE ENIS student chapters such as the Industry application society (IAS), the Robotics and Automation Society (RAS) and the Computer society (CS). The photos below illustrate some events organized by WIE ENIS AG in 2013.

Visit to the SOS village of Mahres, October 2013, Sfax, Tunisia

The Best Humanitarian Activity Winner in the IEEE Day Photo Contest

WIE Workshops Presented at MESBC May-June 2013, Beirut, Lebanon

Celebration of IEEE Day, October 2013, Sfax, Tunisia

IEEE Hardware Freedom Day, May 2013, Sfax, Tunisia

The 4th International Competition RoboComp'2013,
December 2013, Sousse, Tunisia

Participation to the 1st R-8 Mediterranean SB IAS Chapter Chair Workshop, November 2013, Rome, Italy

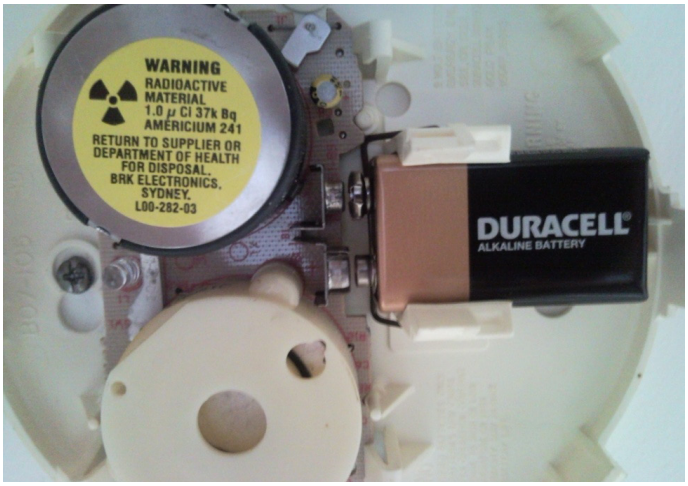
Seminar presented By Mrs. Meliha B. Selak intitled “An Engineer’s Journey: On Career, Work-Family Balance and IEEE”, March 2014, Sousse , Tunisia

APPLICATIONS OF IONIZING RADIATION

by Galini Kondyli, DUTh SB IAS Chapter Chair

Ionizing Radiation has entered the everyday life for good. Radiation is used extensively in industry, since it has many applications, especially in non-destructive testing, that gives the ability to take a look at the inside of objects without having to cut or break them.

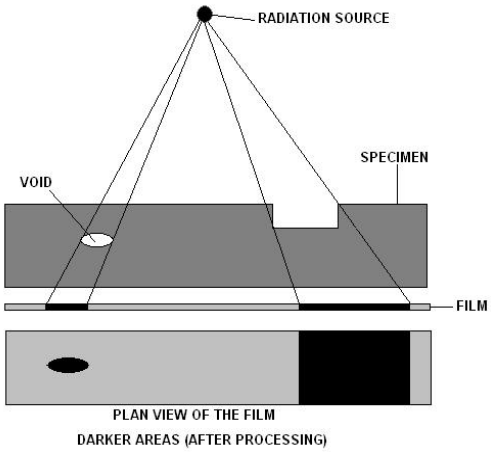
Smoke Detector



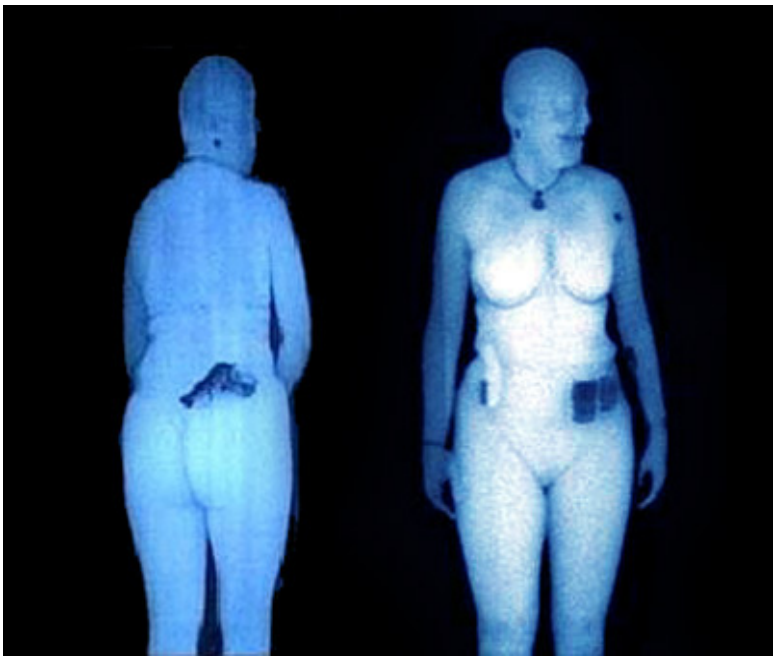
A smoke detector is a device that senses smoke and hence fire. The smoke detectors issue a signal to a fire alarm control panel as part of a fire alarm system, or they issue a local audible or visual alarm. Smoke detectors contain a weak amount of Americium-241 with a half-life of 460 years, which emits alpha particles. The alpha particles ionize the air, so that the air conducts electricity and a small current flows. If there is smoke in the area, it absorbs the alpha particles, and the current reduces, making the smoke detector sound.

Radiographic Testing

In this method, a gamma ray source is used, placed on one side of the object and a film is placed on the other side of the object. An image of the object is created on the film, due to the decay of the beam, while it reacts with the object.



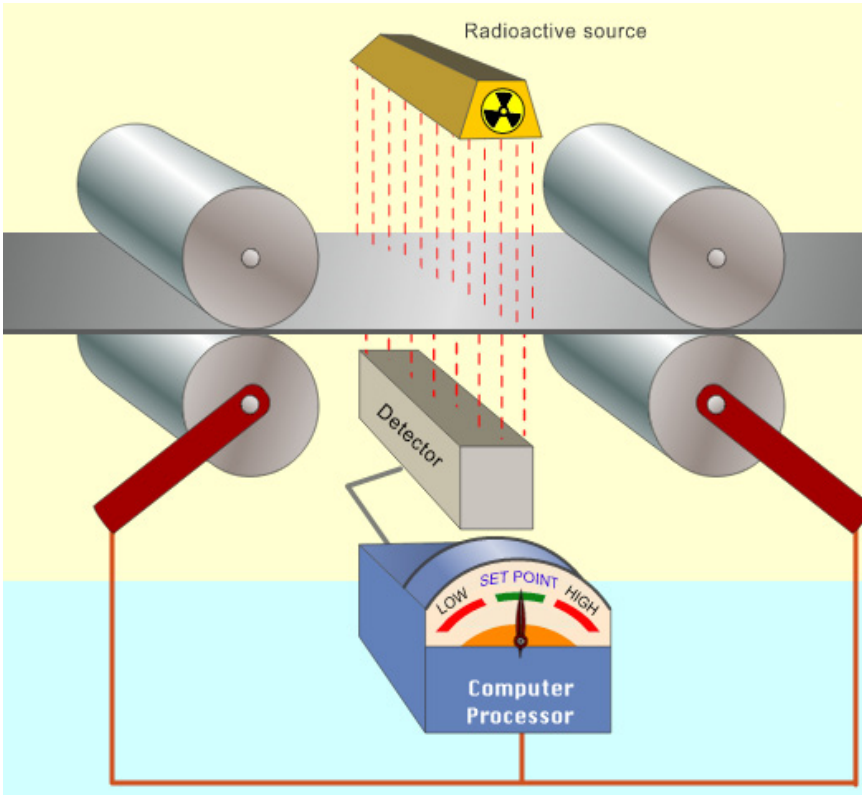
X-ray Security Scanners



X-ray Scanners are used in airports worldwide to check the content of luggage and the items the passengers carry. In this way, radiation is used to detect explosives, guns, sharp objects and narcotics. The X-rays can create a 3D picture of a human or an object and depict both internal and external structures of the object. By utilizing ion mobility spectrometry, the X-ray machines can detect even the smaller traces of elements found in most explosives. In this way the X-rays can help prevent terrorist attacks.

Thickness Control

In industries that make products with a specific thickness such as paper, plastic film, aluminum foil, steel etc, the thickness of the product can be controlled by measuring how much beta radiation passes through the paper to a Geiger counter. The counter controls the pressure of the rollers to give the correct thickness. Beta rays are used instead of alpha rays, because alpha rays would be absorbed by the materials. Most frequently the isotope used is Strodium 90. Its half-life is 29 years, and the beta particles resulting from its decay are moderate in energy, reducing the risk of exposure to any workers nearby.



Radiocarbon Dating

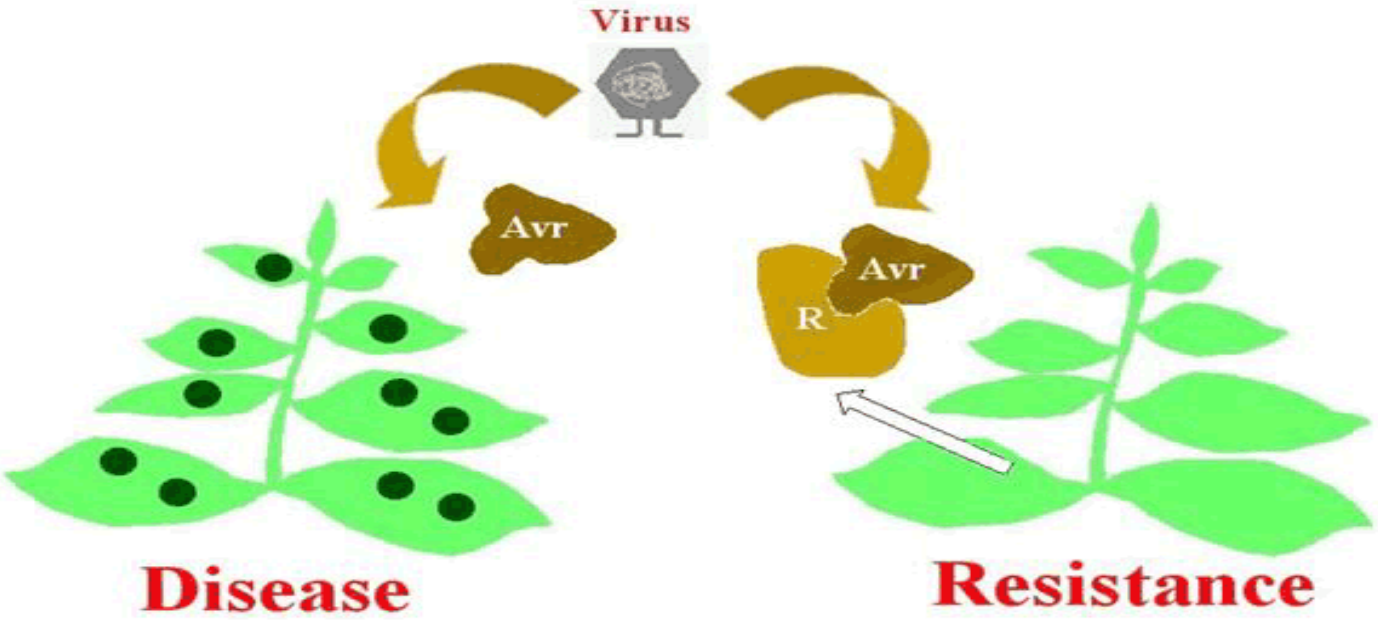
Radiocarbon dating is a radiometric dating technique that uses the decay of carbon (C-14) to estimate the age of organic materials, such as wood and leather, up to about 58,000 to 62,000 years old. Carbon dating was presented to the world by Willard Libby in 1949. The Earth's atmosphere contains various isotopes of carbon, but mostly the main stable isotope C-12 and an unstable isotope C-14. Through photosynthesis, plants absorb both forms from carbon dioxide in the atmosphere. When an organism dies, it contains a standard ratio of C-14 to C-12, but as the C-14 decays with no possibility of replenishment, the proportion of carbon 14 decreases at a known constant rate. The measurement of the remaining proportion of C-14 in organic matter can estimate the age of the matter. One of the most frequent uses of radiocarbon dating is to estimate the age of organic remains from archaeological sites.

Sterilization

Gamma rays can be used to sterilize food and equipment. These rays can kill bacteria, mould and insects. The food has a prolonged shelf-life, although sometimes it changes its taste. Furthermore, gamma rays can be used to sterilize hospital equipment, especially plastic syringes that would be damaged if heated and donated blood. The radiation kills off unwanted elements and antibodies, while keeping the red cells intact.

Promoting Genetic Mutation

Radiation has the ability to modify the DNA, causing mutation to the radiated organism. By radiating seeds, the cultivators can achieve genetic mutation to the organisms. Mutations by radiation can be beneficial for the plants, such as mutations.



Picture: The plant on the left is sick, while the plant on the right has the proper gene, that makes it resistant to the disease. If a plant has the appropriate R gene to correspond to the pathogen's Avr gene, then the plant is resistant and no disease develops. If, however, the plant does not have the matching R gene, the interaction may result in infection.

The isotopes used for the Industry Applications have a long half-life, so that they don't need to be replaced often. The half-life of an isotope expresses the amount of time required for a quantity to fall to half its value as measured at the beginning of the time period. The isotopes are chosen carefully with a long half-life so that the processing line is not interrupted regularly to replace the source and the company does not have to dispose of radioactive material often. It is also important to choose isotopes with the proper penetrating properties and to know the level of energy emitted by the isotopes, so that the people exposed can take the necessary precautions and protection.

1ST REGION 8 MEDI-TERRANEAN STUDENT BRANCH IAS CHAPTER WORKSHOP

by Galini Kondyli, DUTh SB IAS Chapter Chair
Christina Pamagiota Malliou, DUTh SB IAS Chapter P.R. Manager
and Ioakeim Drosinos DUTh SB IAS Chapter Member

On December 14 and 15 2013, the "1st Region 8 Mediterranean Student Branch IAS Chapter Workshop" took place in Rome, Italy. The workshop was organized by the "Sapienza University of Rome SBC". The DUTh IAS SB had 4 representatives, 3 student members and the Chapter's advisor, professor Karlis.

Even though the workshop only lasted two days, we managed to make the most out of it. On the first day, we walked to the Sapienza University accompanied by the other attendees and the Italian hosts and had the chance to see the city and break the ice with the others. After the necessary opening introductions, we attended some presentations about the IAS, IAS CMD, Women and Students In Engineering. We enjoyed the presentations while we learnt some interesting facts about IAS and we were motivated to expand our chapters. During the “Activity Presentations” our student members got to show the attendees our chapter’s development and our actions. We also watched the presentations about the other Chapters’ activities and we saw some great ideas that we plan to put into practice in our University.

In the afternoon we took part in the Inter-cultural contest where participants presented their culture, music, cuisine and the natural beauty of their home countries. We introduced the IAS members to our culture with a presentation about our country, our history, our traditions and our music while we were giving away food (traditional baked bread, dried fruit, candy and gum). The inter-cultural contest was a very interesting and tasteful experience and since the participants came from all over the Mediterranean sea, we could find similarities and influences between our traditions.

On the second day, with the Italians as our guides we walked around the historical city. We visited the Colosseum, the Imperial Forum, the Capitolium, the Navona square, the Castle Sant’ Angelo and the Vatican City. We were amazed by the beauty and the history of the city. As Greeks, we were genuinely glad to visit Rome, because of the common history and civilization between ancient Italy and ancient Greece.

Regarding the Italian cuisine, we were lucky enough to taste the famous Italian pizza, pasta, coffee and gelato (ice cream) while eating in authentic Italian restaurants with the other representatives.

In our trip to Rome, we had the chance to meet people from other countries and establish friendships that we plan to keep in the future. We were able to exchange knowledge about engineering issues with students and teachers with the same interests. The things we learnt from the 1st Region 8 Mediterranean SB IAS Chapter Workshop will make us better engineers and will improve our chapter. Our trip to Rome was yet another great IAS experience!

WE ARE IN THIS TOGETHER

by Aristotelis Farmakis, DUTh SB IAS Chapter Vice Chair

IAS, for us, students, is definitely something more than just a multinational professional society. It is an opportunity to be part of something big, an opportunity to stand on our own feet and actually do something we would not have the chance to do individually.

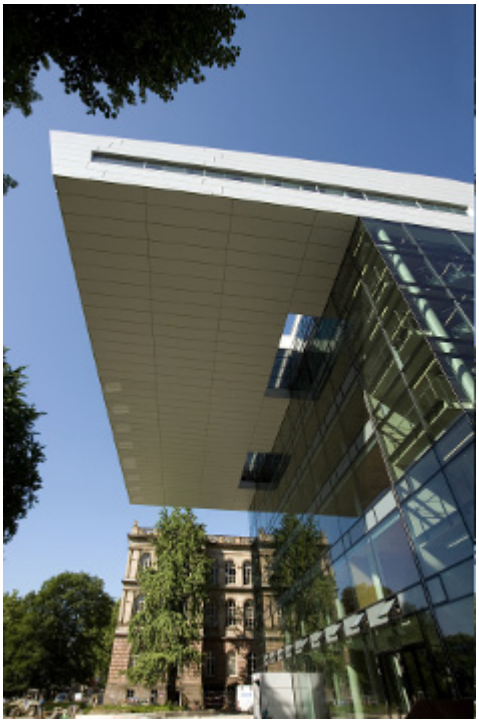
Academic collaboration and competition is just one part. Being part of a team, organizing events on what you personally care about is another. Most of all, you get a heads-up and realize what you have to Do to get a job you want done in real life. You get, for a change, to be more than a student. This could mean being stuck in bureaucracy or having to deal with a man twice, or even three-times, your age while planning an activity. Plus, more important, you realize it is already time to start building a network, your own, personal, professional network.

When you aim for a goal, nowadays, it all comes down to who you know, or maybe, who knows you! If it wasn't for societies like IAS, most of us, students, would have almost no chance in participating in an international conference/event on our academic interests. Therefore we would not be able to meet peers or seniors in our area of expertise, outside our close university circle. Through IAS, we get to meet all of you and thus cooperate in manners needed to get something done, from designing celebrative items as part of a multinational committee to organizing an international event.

Different IAS chapters need one another! We keep in touch, we team up and maintain this breathing organization alive. This way, we make it possible that we have opportunities only a few do. Ones we seize and make all the difference. Together we work the "what can you actually do?" part of a job interview. Together we meet new cultures, we face contradictions based on foreign perception, we manage to think fresh, outside the box and we expand our network exponentially. Foreign chapters' news and activities weigh just the same as our own. This section in our magazine is devoted to you. So let's get connected.

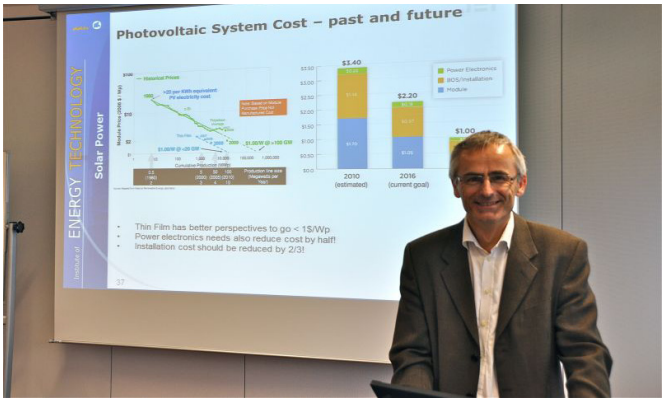
AACHEN UNIVERSITY
IAS - PELS - PES CHAPTER

by Marco Stieneker



The Student Branch Joint IAS/PELS/PES Chapter Aachen is located at RWTH Aachen University in Germany and started its activities in October 2010. The current scope of the chapter is within the field of power electronics, electrical drives and batteries. The field trips, workshops, hands-on projects and lectures we are organizing are supposed to bring practical aspects into the theoretical everyday life of students in Aachen.

The three technical societies the IEEE SB Joint Chapter belongs to, the Industry Application Society (IAS), the Power Electronics Society (PELS) and the Power and Energy Society (PES), offer the possibility to organize activities within a wide range of topics. Thanks to the distinguished lecturer program of PELS, we could invite Professor Frede Blaabjerg from Aalborg University, Denmark, to give lecture on “Power Electronics – The Intelligent Interconnection of Renewables”. The inspiring presentation gave our chapter members and guests a great overview on the state of the art of power electronics in renewable energies and insightful perspectives on future challenges.



Every year’s highlight of our activities is a one-week field trip we organize in cooperation with the Institute for Power Electronics and Electrical Drives (ISEA). In 2013 we traveled with a group of 30 students through South-Germany and visited Siemens (Healthcare Sector, Imaging& Therapy Division) in Forchheim,

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Audi in Gaimersheim, MAN in Munich, the Centre for Solar Energy and Hydrogen Research (ZSW) in Ulm and Bosch in Schwieberdingen.

For the year 2014 we are currently planning a field trip from 9th to-14th of July to visit the companies Daimler, Bosch, Akasol and ABB. Also, a stop-over at the "Car & Technology Museum" in Sinsheim in planned.

One of the next future activities will be a technical lecture about stand-alone electrical supply networks in developing countries and its challenges towards grid stability and cost efficiency. The Student Branch Chapter Aachen wants to use this technical lecture as kickoff meeting fort a hands-on project to find smart, useful and cheap solutions to increase the grid stability in stand-alone electrical supply networks.

It is our mission to make students enthusiastic about power engineering technology to bring people together in order to share perspectives, ideas and visions and to get engaged in projects making a difference.

FRANCISCO JOSE DE CALDAS DISTRITAL UNIVERSITY SBC

by Carol Johamma Pérez Mera

Currently science and technology are advancing exponentially, resulting in many fields of society a big impact, but it is apparent that one of the most affected areas, and not in a positive way, has been the Environment. As engineering students, our goal is to form fully in the technical and intellectual field, working on an overview of actions and consequences.

This is why Chapter Industrial-IAS Applications Student Branch IEEE belonging to the University Francisco José de Caldas District's mission is to deepen and research in the field of eco-design, in addition to a number of activities which has as its objective to raise awareness among students of the Faculty of Engineering and term future population university, on the importance of technological and scientific progress with environmental responsibility.

Our object of study is mainly the analysis concept lifecycle of a product, building on the idea that there is no waste, but raw material in the wrong place. Since in this subjects of our interest are treated as eco-design to reduce the environmental impact of a product from development to disposal, taking into account their distribution and use. Apart from the foregoing we have described the measures as a

model on the subject that have been taken at the regional level as the zero waste plan.

Our motivation comes in addition to the environmental situation of our country Colombia, the need to integrate into our training professional concept of environmental responsibility. The activities are based on the idea of the collection, reduction and recycling, so it has initiated the collection of recycled materials such as newspapers and plastic containers for use in the design of useful objects like armchairs or actions that enable people are part of our environment “think green.”

Conclusion as chapter our goal is to try to create a change of mind, initially in students of University Francisco José de Caldas in Bogotá, and then also be able to engage in a field of wider projection, thinking that we want to generate input from academia to society.

SAPIENZA UNIVERSITY IEEE IAS STUDENT BRANCH CHAPTER

by Eng. Emanuele Zennaro,

It is a source of proud to present the IEEE IAS SB Chapter of one of the most ancient european Engineering Faculties to our readers. At the end of 2010 in the shadow of the Colosseum, Prof. Giuseppe Parise grouped the most trusted students to give them the chance to create an IAS SBC. Since 2011, several students have been involved in international activities. Our history started as we start every year, organizing and participating to the “social” dinner for the activities planning of the year.

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The main purpose of Sapienza IAS SBC is to contact our students with their colleagues around the world stimulating them not only to learn from lessons. The IAS SBC is the ideal place where our students can know the state of the art of some topics that are of interest for the scientific and technological community.

In fact, in 2011 and 2013 we invited two IAS IEEE fellow members, Prof. Mark Halpin and Eng. Peter Sutherland to take distinguished lecturers on voltage flicker compensators and arc flash respectively.

This chapter involves students, for instance, taking them the possibility to win an award for the best Master of Science's thesis on the topic of electrical safety. This award is named Premio Montefusco, in the honour of the engineer Montefusco who contributed to the research on the electrical safety and promoted the activities of the chapter.

Since 2011 Sapienza IAS SBC is represented at the IAS annual conferences by Eng. Luigi Parise, past chair 2013, Region R8 chair and researcher. Orlando, Madrid, Las Vegas were the place where our IAS SBC can say: I was there!

On 14th and 15th December 2013 we were distinguished for the successful organization of the first R8 Mediterranean SB IAS Chapter Workshop. Students from Greece, Croatia, Bosnia-Herzegovina, Tunisia, France presented the IAS SB chapter of their universities at the presence of Eng. Blake Lloyd and Eng. Peter Magyar. A Skype conference was realized with student from Palestine. In perfect line with IEEE tradition, every group has made known to the other the culture of his country by slideshows and foods.

This workshop was organized and participated by all Sapienza IAS SBC members and our membership more than doubled. For the first time many students had the chance “to push the boundaries of Italy” creating international relationships.

Western Thrace or simply Thrace is a region of Greece, located between the Nestos and Evros rivers in the northeast of the country. Thrace is divided into the three regional units Xanthi, Rhodope and Evros. The name appears to derive from an ancient heroine and sorceress Thrace, daughter of Oceanus and Parthenope, and sister of Europa.

Thrace is a well-known destination for tourism or alternative tourism. The region's southern Aegean coastline is dotted with tens of blue-flagged beaches, as well as with rocky coves ideal for fishing and diving. Modern tourist infrastructure and organized camping sites attract thousands of visitors each year, offering ample opportunity for a wide range of water sports. The beautiful islands of Samothrace and Thassos are the region's green gems.

The area's rich flora and fauna includes the majority of the plant and animal species on Greek soil. Vistonida Lake, the Delta of Evros and Nestos Rivers, the Dadia Forest, the Mitrikos Lake, are all areas where one can meet species tending to extinct worldwide. The mountainous masses of Rodopi and the other mountains on the mainland offer ample opportunity for nature walks, action-sport activities and all types of sightseeing. Throughout the region lie forests of unique and natural beauty, such as the Elatia Forest, the virgin forest of Fraktos and many more.

Plethora of historic and prehistoric monuments are scattered throughout the area. Visitors will find monuments from antiquity, Roman era, early Christian period, Byzantine and Ottoman times. Seaside tavernas serve fresh fish and sea-food, while at mountain villages visitors should savour the local sausages and fresh meat dishes. Food lovers should not miss the great variety of appetizing mezes (appetizers) invariably accompanied with local wine. Sweet pastries soaked with thyme honey are still made according to old traditional recipes. The region is also famous for its dairy products.