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EEE Newsletter
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“Sports are such a great teacher. I think of everything they’ve taught me: camaraderie, humility, how to resolve differences.”

Kobe Bryant

Excitement, Emotions, Drama and Suspense, the LICET Sports day 2k17 had it all. Starting from the flamboyant march past to the track events where our ever-energetic students challenged each other in the most competitive manner, never compromising on the intensity and the spirit of the game. The EEE department in particular, marked a page in the annals of LICET, showcasing one of the finest performances, making the other competitors sweat it out to clinch the coveted title.

Special mentions to T. Meena (final year), J. Narendhiran (II year), K.S.E. Kiran Cumar (II year), S. Aarthi (I year) and the girls’ Volleyball team for bagging the title by their unceasing individual and team effort in their respective events.



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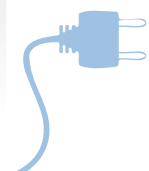
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SPORTS DAY

The beautiful and crisp morning of 11th February, 2017 witnessed the charming and cheerful faces of the LICETians as they celebrated their Annual sports extravaganza and mesmerized everyone with their performances. "The moment of victory is much too short to live for that



and nothing else," said Martina Navratilova, tennis player. Apart from commemorating victories, sports meets also aim at imparting lessons on sportsman spirit and camaraderie to children.

The event kicked off with the star performers of LICET lighting the torch and the captains from each department taking the oath of Sportsmanship.

Mr. Abhash Kumar, IPS, graced the occasion with his presence. His impressive talk was a perfect boost to the students' morale. He then presided over the 'March Past' wherein our students shook the earth with their synchronized marching. He was really impressed with the performance of the marchers. The EEE department maintained its standard, carrying the flag of EEE higher. EEE girls won the overall girls championship. The boys cricket team took second position. The girls team won the volleyball title.

All credits go to the management, staffs and students.



SPORTS ACHIEVEMENTS

Athletics

The men's athletic team clinched a prestigious second place in zone 3 competition.

1) Kirancumar KSE II EEE 2nd in Shotput.

2) Natarajan of IV EEE, won the silver medal in 4x100 mts relay due to the best display of team work.

The women's athletic team was in no way inferior; they too marched into victory, securing II position. The awardees are,

Aarthi S I EEE won the first place in 5000mts & 1500mts.

Meena of IV EEE & Aarthi S of I EEE bagged silver in 4x100 mts relay.

Aarthi S of I EEE won 4X400 mts relay.

Inter Zone & University

Swimming Women

Aarthi S of I EEE proved herself by winning 1 gold medal, 4 Silver & 2 bronze in the Anna University Inter-zone Competition, she is also selected for All India Inter-University competition.



Rowing:

Siddharth Shiva - IV EEE are selected for

the Anna University team represented All India Inter-University competition to be held at Amritsar.

Inter Collegiate Tournament

Our teams participated in various inter collegiate tournaments hosted by different engineering colleges in the state and brought many laurels by the dint of sheer hard work, ultimately proving their mettle and making the college proud.

Swimming

Aarthi S of I EEE won the 2 silver & 4 bronze medal in the All India level competition conducted by Jain University, Bangalore.



DEPARTMENTAL ACTIVITIES

MEMORANDUM OF UNDERSTANDING

This memorandum of understanding was executed at Chennai on 30th January 2017 BETWEEN Loyola-ICAM College of Engineering and Technology (LICET) at Loyola Campus, Nungambakkam, Chennai - 600034, Tamil Nadu, India represented by Dr Jose Swaminathan, Principal and National Institute of Wind Energy (NIWE) at Velachery-Tambaram High Road, Pallikaranai, Chennai - 600 100 represented by its Director General, Shri Dr. Gomathinayagam.



National Institute of Wind Energy (NIWE) is a premier Autonomous Government Research & Development institution under the Ministry of New and Renewable Source of Energy catering to the growth of Wind & Solar energy based technology in India. MOU was signed in accordance with the mutual desire to promote cooperation between the National Institute of Wind Energy (NIWE), an autonomous R&D Institution under the Ministry of New and Renewable Energy Resources, Government of India and the Loyola-ICAM College of Engineering and Technology (LICET) for the purpose of research interaction.

OUTREACH PROGRAM

"A kind gesture can reach a wound that only compassion can heal"

Steve Maraboli

On 25th March, 2017 (Saturday), we the students of the 2nd year EEE Department had visited the Destitute Old age Home at the Don Bosco Beautitudes, in Vyasarpadi.

Our team had collected Rs.4000 from 2nd year EEE Department, out of which we had purchased ten watermelons, sixty Rin Bars, seventy Hamam soaps and 15 Nycil Cooling powder. We donated the rest of the cash to the Home.

A team of twenty two students had assembled at the Venue by 9:00a.m. Initially we greeted everyone and began with the programs that we had planned for the day.

Vivian Nelson played the Guitar and sang beautiful songs for the audience. Bro. Silvester Cyril had also given a hand in playing the Guitar and entertaining the audience.

The music session was followed by a Skit that emphasized on the 'Family Bondage'. Through our play, we showed the audience, how in spite of so many problems in the family, they stay united and happy forever. Suja Joseph and Thajudheen did the dubbing for the entire play. Vivian Nelson and Roshini played the lead roles. Joshini Infant, Divya Laveena, Dinesh, Sindhu and Sajwa Maryam played the filler roles. The elders appreciated us for coming up with an excellent drama.

After the skit, we held games for the Elderly people. Musical chair and Passing the Parcel was conducted for them. They enthusiastically participated in the games. They laughed a lot, sang beautiful songs, expressed their eagerness to participate in the games, danced and had fun to their heart's content. We could see a child in every Elderly person there.

We spoke to the elders and they shared their stories with us. We consoled them and promised them that they are not loners and that we would soon visit them after our exams.

Next, we distributed fruits and clicked pictures with them. We sought their blessings and departed around 12:30p.m. after the prayers. A special mention on Bro.Silvester Cyril and Narendhiran, who played a major role in the success of the Outreach Program.

Overall it was a wonderful experience for us. We look forward to more such Outreach Programs, to lend a supporting hand to the poor and needy people. We sincerely express our gratitude to the HOD of EEE Department, Mrs.Inba Rexy, who gave us this wonderful opportunity to reach out to the needy people. We promise to continue this good work and help others as and when needed.

A.Roshini
II EEE



FACULTY ACTIVITIES

“THE ONE EXCLUSIVE SIGN OF THOROUGH KNOWLEDGE IS THE POWER OF TEACHING”

ARISTOTLE

A teacher plays an integral part in a student's development. They toil, they suffer and they undergo a lot of excruciating pain in bringing order and discipline among the students with the hope of seeing them come out in flying colours. Our management and department encourages the faculty to undergo various training programmes and attend lectures which further enhances their skills.

Listed below are the various training programmes attended by the faculty of EEE department:

S. NO	Faculty Members attended	Name of the training	Location	Date	
				From	To
1.	Ms. A. Inba Rexy	PLC and SCADA Overview	Yokogawa Technical School	13/03/17	16/03/17
2.	Ms. S. Sathya Bharathy				
3.	Ms. A. Inba Rexy	Analysis and Evaluation of Performance Parameters for Interleaved PFC Boost Converter	Jerusalem College of Engineering, Chennai-100	17/03/17	18/03/17
4.	Ms. A. Inba Rexy	CMOS, Mixed Signal and Radio Frequency VLSI Design	IIT-Kharagpur (Online Activity)	26/12/16	4/02/17
5.	Ms. S. Priyadarshini				
6.	Ms. G. Annie Nancy				
7.	Ms. A. Sharada				
8.	Ms. S. Sathya Bharathy				

PLC and SCADA Overview



We had a three day training session conducted by YOKOGAWA. The topics covered by them in those three days were PLC and SCADA. We were given the theoretical knowledge on PLC and we were allowed to work on the software provided by YOKOGAWA. We were given tasks based on logical reasoning related to PLC (real time application). This really motivated us to do the task enthusiastically as the concept was taught very well. Then we were taught about SCADA and were separated into batches and we were allowed to work and observe the SCADA application. The trainer allowed us to observe on SCADA application. The trainer allowed us to observe real time projects and work on it under his guidance. This session was very useful and was really interesting and it triggered our logical thinking. We had a great hands on experience. Finally there was a test conducted by YOKOGAWA which tested our skills acquired in the training period. We are obliged to be given this opportunity by YOKOGAWA.

Andrea Devotta

III EEE

INDUSTRIAL VISIT

I EEE

The students of First year EEE visited Integral Coach Factory, Chennai, a manufacturer of rail coaches on 31.03.2017. The students had demonstrations on the manufacturing at their shell division and furnishing division. The visit provided the students an insight on the manufacture and assembly of skeleton of the rail coach.

II EEE

The students of Second year EEE visited North Chennai Thermal Power Station, Chennai, one of the four major thermal power plants of Tamil Nadu, on 28.01.2017. Presently the plant has an installed capacity of 450-MW. Students were exposed to the equipments in the plant and had the feel of actual process in the generation of electrical energy in a coal fired thermal power plant.

III EEE

The students of Third year EEE visited 400 kV Switchyard, Sriperambudur on 06.02.2017. In the plant, students carefully studied and observed the switchyard model, transformers, circuit breakers and various electric apparatus. They got information and field knowledge about Power Distribution and Transmission. Students clarified their various doubts regarding the process in the switchyard.

PARENTS TEACHERS ASSOCIATION

PTA meeting conducted in LICET once in every semester enables parental participation in the organization and it was conducted on 18th of February. The parents of first, second and third year actively participated in the meeting and shared their valuable ideas to improve the academic performance of the students and betterment of the college. The objects of the PTA were to advance the education of the students by providing and assisting in the provision of facilities for education at the college, to develop more extended relationships between the staff, parents and the students. At the end the staff members were happy and delighted having an interaction with the parents and the parents felt satisfied that the PTA meeting was organized in a good way.



PAPER PRESENTATION

S. No.	NAME	CLASS	NAME OF THE ORGANISER	POSITION
1.	Hari Krishna R.	III EEE	SNS College of Engineering	Second
2.	Jeshua Varun Tracy	III EEE	SNS College of Engineering	Second
3.	R. Sriram Prasad	III EEE	Meenakshi Sundarajan College	Third
4.	Syed Farraz	III EEE	Meenakshi Sundarajan College	Third
5.	J. Stephen	II EEE	Madha Engineering College	Participation
6.	Jaswanth Rajha	II EEE	Madha Engineering College	Participation

GUEST LECTURES

In association with the IEEE - student chapter a Guest Lecture on Thermal Conversion Efficiency of Biomass into Biogas for Bottling and Power Generation by Dr. P. Shanmugam, Senior Principal Scientist, Environmental Engineering Department, CLRI (CSIR) by III & IV EEE on 27.02.17.

Is it a good bye???

No!!!

Seniors had given us class notes and guided us in exam preparations. We juniors are grateful that we got seniors like them who gave the hope to perform well in enginea, symposium and helped us to maintain the reputation of the department & college.

Third year EEE organised a small farewell for our beloved seniors. We had a short period of time to entertain them. We began the farewell with a prayer to seek Almighty's blessings. Our class boys prepared a show to narrate the importance

FAREWELL



Our Seniors

of friendship in college life. We gave them a memento for them to remember their college life. Mimicry and stand up comedy was performed by athen raj and joyson. We had arranged for an event where everyone gets to say thanks and sorry to their favourite person.

Our faculty members expressed their love through their farewell speech. Finally we took photos and concluded the farewell. We gave a memorable farewell for our seniors.

Nancy Infentina C
III EEE



Seniors enjoying the farewell function



With our teachers



Sharing the memories

ALUMNI TALK



MS. DOROTHY THOMAS
EEE Graduate from 2012-2016 Batch

When I decided to join LICET to pursue my degree in Electrical and Electronics Engineering, I was very hesitant about the decision I had made. However, soon after the course began, all my fears had vanished and I began to enjoy every moment I had spent at college. LICET is blessed with remarkable staff who painstakingly work to lift the college and its students to greater heights. With their guidance, seemingly difficult things became easy. Although I was good at studies, I was never the most obedient student in class. I don't recall a moment where I was not caught or punished by the staff for the mischief my friends and I were up to. Those were some of my most cherished days as a student.

Apart from all those unforgettable memories, LICET has also taught me some valuable lessons for life.

It gave me an opportunity to visit France for a duration of 1 month as a part of the Summer Program where we underwent a Project Management Course involving the latest software and technologies. During this period, we were forced to manage our own finances, cook, clean and fend for ourselves. As a result, I learned to be independent and self-reliant and gained the ability to think on my own. The Summer Program was truly enriching and was one of the best experiences of my life.

The faculty also made continuous efforts to take us for frequent Industrial visits, organize regular guest lectures from Industry Experts had arranged for Internships during term breaks which helped in increasing and elevating our industrial exposure. I was fortunate to be able to complete my final year project in a reputed electrical company with continuous encouragement and support from my HOD and faculty members.

A small piece of advice to my juniors – College life is one of the best phases of your life. Enjoy it to the core. At the same time, make the best use of the opportunities and resources that are available to you. The harder you work for something, the greater you'll feel when you achieve it. So go confidently in the direction of your dreams, and live the life you've imagined!

Currently, I am pursuing my PGDM at Loyola Institute of Business Administration and I can proudly say that LICET has been the constant driving force to 'Let My Light Shine'.

Heartfelt thanks to each and everyone who was a part of this wonderful journey of mine.

MR. SABARISH R
EEE Graduate from 2012-2016 Batch

College is undoubtedly the perfect environment for students to explore, experiment and enhance their skill set. It is the cardinal period of



personal and professional development. It does indeed condition us for the vagaries of life. As a student, I too was brimming with curiosity. My teachers always encouraged questions and patiently answered even the most obvious ones with a smile. Through the years, classrooms evolved into places for disparate discussions resulting in interesting opinions and opened up new avenues of thought. The conducive learning environment coupled with a strong peer group helped me immensely in picking up varied skills. The student exchange program, friendly teachers, ably guided projects, on demand mentoring and wonderful classmates enriched my journey with memories of a lifetime.

MS. DHIVYA BHARATHI
EEE Graduate from 2012-2016 Batch

The first and foremost thing which I am always proud to say is "I am a Loyolite". I am proud to say this today and that's because of my dad who is my constant support and a pathfinder who guided me to choose this college and made me feel the pride of it. Even though he chose the college it was thoroughly my decision to choose my stream as EEE. I too had a slight hesitation about how my life is going to be, because according to few conservative people EEE is kind of tough compared to other streams. But trust me I had the best experience of learning from our faculties which never made me feel so.

All the department members be it a faculty or an attender played a major part in my four-year college journey. The best part of our learnings was at industrial visits which were both informative and entertaining. To say about me, I am a kind of jovial and bit studious type. But I have also been mischievous during my final year which has given me a lot of memories to count on and cherish.

Apart from all those unforgettable memories, LICET has given me many opportunities to build up my skills to become a professional in the corporate arena. I am really thankful to my faculty and my HOD for considering our suggestions and doing the needful to make us complete our journey with flying colours.

My last two years were so memorable as we had projects and mini projects. We had an elective subject called "Robotics and Automation" in our third year which inspired us to make a robot, and we as a batch of ten people made an obstacle avoidance robot which was a huge success for us at that moment because of which we gained a lot of exposure towards various jargons which helped us a lot in completing our final year project successfully.

I would like to share a piece of thought to my juniors – College life is the best and the most unforgettable part of a person's life. Utilize it in a proper way, make your college life as meaningful as possible, utilize the resources and knowledge of our faculty to blossom in your life. But also, don't forget to have fun with your beloved classmates. Be a family and make the best out of your four-year college journey.

With all the support and care of LICET, I have been placed in an IT assurance provider company called MAVERIC SYSTEMS, which has a tie up with LIBA and they are sponsoring for my Executive MBA in Finance.

I feel thankful to each and every person in LICET who have been a part and parcel of my college journey and have made me a much more better person to tackle the competing world.

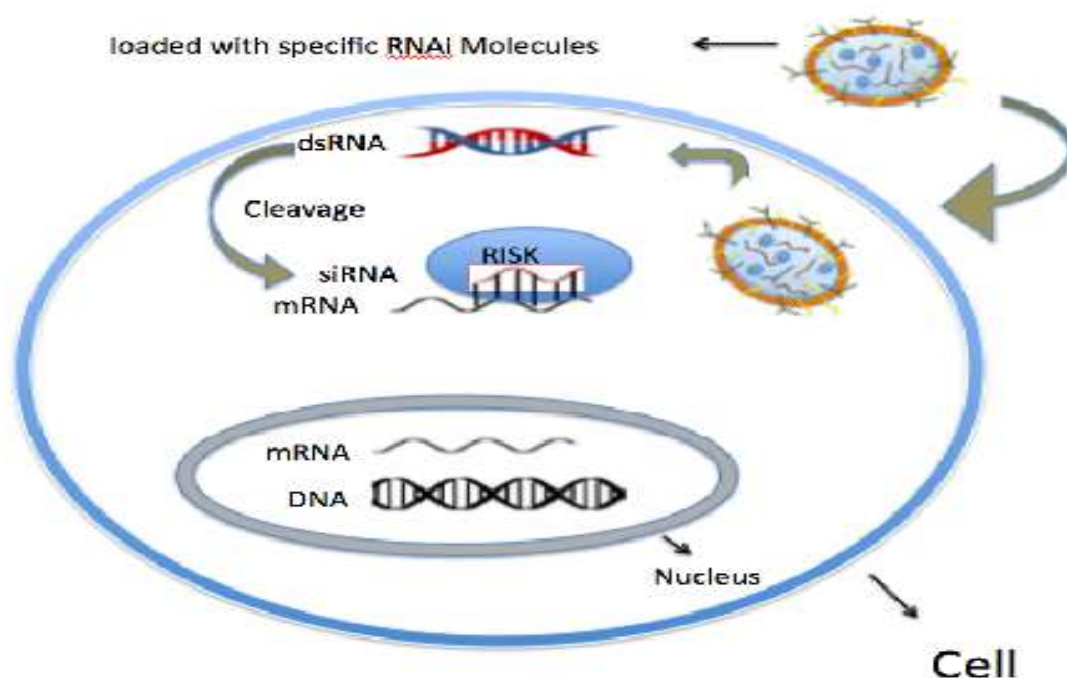


ELECTRICITY AND STUDENTS

NANOTECHNOLOGY - TOOL IN GENE THERAPY

Nanotechnology is a field that has been developed some decades ago. Since then it has been expanding rapidly and

siRNA has a great potential to be a leading therapeutic tool for several diseases. However the major obstacle that stands in the way of realization of such therapies is in the vivo delivery of RNAi molecules like the siRNAs. These



has also gained the attention of many scientists. Bio nanotechnology is a science that made use of biological building blocks to fabricate useful tools in nanoscale. Bio nanotechnology is certainly one of the key technologies of the 21st century that merges material science and biotechnology. Nanotechnology is the new utensil that explores biomolecular structures, functions and properties. Gene therapy is a medical intervention that uses genes for the treatment or prevention of disease. It has gained massive researchers' interest because of its potential to be an alternative for surgery and drug treatments. Moreover RNA interference (RNAi) is one of the most exciting and revolutionary new approaches to therapies that have attracted considerable amount of attention within the last few decades. It has been found that gene expression may be controlled at the level of messenger RNA via non coding RNAs. Plus micro RNA (miRNA) and small interfering RNA (siRNA) may be used as curative agents on their own, as they both adjust gene expression with high specificity.

Challenges of delivery of therapeutic siRNA

molecules are too impermeable and too metabolically labile to be delivered alone, hence it is essential to develop vectors with which these molecules may be both protected and facilitated in reaching the target site. The important aspect is that siRNA stability is highly negotiable, due to the extracellular degradation by enzymes located in serum and tissues. It results in short life time of the bare siRNAs in the serum that can go up to one hour. Another issue taken into account while dealing with therapeutic siRNA is the off target silencing which results in major undesirable mutations of gene expression. An optimal strategy for siRNA would be the one which guarantees targeted delivery and high stability.

Nanoparticles used in gene delivery

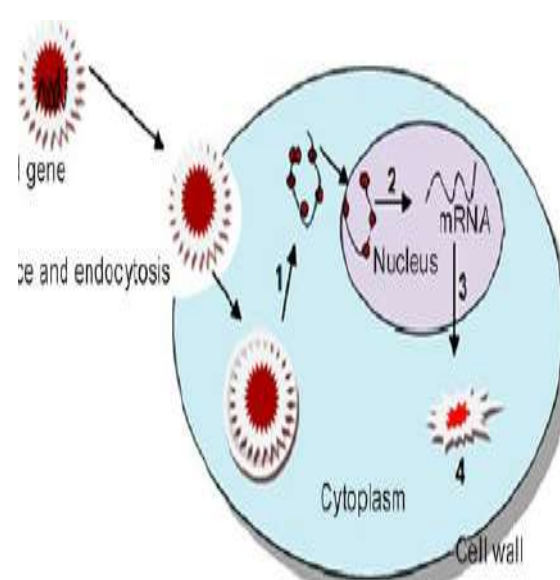
Polymer nanoparticles:

Polymer nanoparticles (PNPs) deliver genes or therapeutic proteins includes drugs which can either be dissolved or encapsulated within them forming a nanoparticle and a nano capsule respectively. They also deliver proteins to the targeted cells by entrapping them within its structure forming a Nano sphere which act by altering the defective proteins of genes in the

patient's cell. The size of the polymer nanoparticle can be tuned to enable these drugs and therapeutic protein to fit in. PNPs are synthesized from non-toxic biodegradable, biocompatible polymers like Chitosan, cyclodextrin, polyethylenimine (PEI) and dendrimers. PNPs technology has revolutionized the field of biology and health services. It has been demonstrated that using polycations such as polylysine we can overcome the DNA size barrier as it can condense DNA into toroidal nanostructures to sizes less than 150nm which can be internalized within the cell.

Dendrimers for gene delivery:

Dendrimers are 1-10 nm, three-dimensional globular synthetic macromolecules. Dendrimers are highly branched and characterized by monodispersity. Dendrimers architecture consists of the core, branches and many terminal functional groups. The most well studied dendrimer is polyamidoamine (PAMAM), which is characterized by high solubility and reactivity due to the presence of empty internal cavities and numerous functional groups at its periphery. The properties of dendrimers, such as monodispersity, well-defined structure and the extensive quantity of surface functional groups, made them valuable tools to be used in gene delivery.



Gold nanoparticles:

Gold nanoparticles (AuNPs), are known to be appropriate gene delivery vehicles. The optical and physicochemical properties that allow easy transfection into cells and also their unique biocompatibility makes them non-

toxic. Moreover, AuNPs can be easily modified and custom made for optimum delivery and specificity. Several issues must be taken into consideration for successful gene delivery. Particularly effective cargo condensation, cellular uptake, DNA stability and prevention of degradation from nucleases as well as efficient delivery of DNA into the nucleus for expression should be considered. Modification of head groups attached to nanoparticles also serve to protect DNA from degradation cationic quaternary and trimethyl ammonium-functionalized nanoparticles (NP-TMA) protected electrostatically bound plasmid DNA from DNase digestion. Ligands bound on the surface of the AuNPs are exchanged with the cellular glutathione (GSH), which will result in altering the AuNPs surface charge and loosening the nucleic acids bound to the nanoparticles.

Levels of gene expression

In gene delivery studies using nanoparticles, the intracellular distribution of was investigated with and without encapsulation in nanoparticles in a breast cancer cell line (MDA-M435S). The DNA used in the study comprised the wild-type gene for p53 (wt-p53). The results demonstrated cellular uptake of plasmid DNA (without nanoparticle encapsulation), but the DNA (red colour) was seen mainly in the perinuclear area and its intracellular retention did not exceed beyond three days post-transfection. With DNA-loaded nanoparticles, however, the red colour of DNA gradually increased with the incubation time, suggesting its sustained release inside the cell. The slow but sustained appearance of DNA inside the cells also explains the steady increase in gene transfection observed with nanoparticles. The increase in p53 to b-actin ratio (where b-actin acts as an internal control) suggests an increase in wt-p53 gene expression with time, which could result from the sustained release of DNA from nanoparticles. As the DNA is encapsulated in nanoparticles, it is also protected from degradation by nucleases.

Quantum dots for labelling genetic material:

Quantum dots (QDs) are crystalline nanoparticles with electrical and

mechanical properties.

QDs are highly luminescent, colloidal semiconductor Nano crystals. QDs have unique size-dependant properties, which make them highly attractive for applications in catalysis, phosphors, photovoltaic, light emitting diodes (LEDs) and biological labelling. The main appealing feature of semiconductor NCs, are their mesoscopic properties that differentiates them from bulk crystals. Besides, it is possible to bind quantum dots to proteins and receptors to check with which molecules they interact and to explore their location in the cell. Hence, QDs are used in biomedical applications because of their unique tunable optical properties. Made of semiconductor, quantum dots can be excited which makes them suitable not only in monitoring the genes; they are capable of overcoming the challenge of gene silencing. During excitation, the quantum dots attain a higher energy state. This usually occurs during preparation before being used for gene delivery. However, upon entering the cell the differential pH causes the QDs return to a lower energy state. The photons lost during such process leads to fluorescence. The produced light bands are visible to the naked eye. They can be viewed even within organic matter because quantum dots have bioluminescence qualities. Therefore, their optical and electrical properties allow for bioluminescence. Their small sizes make them suitable for delivering genes. They can regain their sizes while in the cell. Semiconductor quantum dots (QDs) can be used to deliver genes such as RNA interference (RNAi) which is capable of silencing genes in the cell which either cause a disease or interfere with the activation of the delivered genes and synthesis of the therapeutic proteins. The ability of the quantum dots to emit light in the visible spectrum of various wavelengths even within biological organisms make the nanoparticles important for tracking and monitoring the genes during the transfection. They significantly reduce the degradation of the genes by the DNA nucleases. Additionally, QDs have been used as siRNA delivery vehicles to silence a target gene, and as fluorescent probes to analyse intracellular imaging in vivo. QDs-SiRNA complex has targeted HPV18 E6 oncogene which has

eventually inhibited the growth of HeLa cells. QD-siRNA complexes serve as dual-modality; providing an optical and tool for live cell imaging and localization of QDs throughout the SiRNA delivery and transfection.

Gene therapy is one of the most exciting and revolutionary new approaches to therapies. The application of gene therapy has been hindered due to many reasons. Therapeutic nanomaterials could be utilized as promising tools to specifically deliver siRNA and mRNA to the target cells. In specific, polymeric nanoparticles are the most commonly used type of nanoparticles which are used in gene therapy due to their biocompatibility and their ability to deliver the genetic material to its target with loss of its function.

Andrea Devotta

III EEE

WE STEP-UP, WE TRANSFORM

We electrical engineers try to AMPLIFY peace so that the world would be RECTIFIED. The new invention to add on to this would be the development of the Solar-powered 'skin'.

A synthetic skin for prosthetics limbs that can generate its own energy from solar power has been developed by engineers from Glasgow University. The skin uses graphene, which is about one million times thinner than paper and is currently the world's strongest material. Its optical transparency allows about 98% of the light that strikes its surface to pass directly through it making it ideal for gathering energy from the sun to generate power. The new skin requires just 20 nanowatts of power per square centimetre. When the skin is placed on a prosthetic hand and the amputee then touches an object they are able to feel the contact pressure as well as temperature. The addition of a solar power capability meant there would be no need for an external battery to power the skin's sensors, thus making the device more efficient and light.

Nobody believed that energy could be harnessed from sun to sustain the life of an amputee but we have proved them wrong, clearly showing that no resistance can drop the potential of an Electrical Engineer.

Joel Sujan

I EEE