Anunad, resonate your thoughts with action, was a two day Science Academies’ lecture workshop on ‘Vista of Science’ organized by Aurora’s Degree and PG College in collaboration with the Science Academy (Indian Academy of Sciences Bangalore, Indian National Science Academy New Delhi, The National Academy of Sciences, India, Allahabad). It was organized on 26th and 27th of November 2010 in Mekaster Auditorium, Osmania University, Hyderabad.

The event witnessed students from ten (10) different Degree and P G Colleges (constituting 60% of the participants) from the twin cities other than the host college. Three (3) faculty members attended from other colleges. The list of the same is attached along with this. First day there was overwhelming response with 275 students all together. Second day we had 225 students.

Prof.Rajaram Nityananada, Former Director, NCRA, Pune, inaugurated the session with the traditional lighting of the lamp. Mrs. Savitha Ramesh, the coordinator of the event welcomed the gathering with a briefing on the objective and the motto of the workshop. She briefed about the support the academy is providing towards development of research interest among student community and the efforts that’s been put towards strengthening the basic science education. Prof.Rajaram who presented the key note address, enlightened the students about the essence of such workshops. He even opened out the opportunities for students to involve themselves in science research through the summer projects offered by the academy.

Mrs. Meera Joshi took pleasure in introducing the first topic of the day, ‘Astronomy’ to the participants and she threw light on the works of the speaker. Prof.Rajaram, who was the first speaker of the day filled the students with lots of energy. He opened out the space for the students in a simple way. He concentrated his lecture on galaxies. He explained about the history of galaxies and even showed how advanced researchers have proved the earlier assumptions wrong and brought about new dimensions of understanding the celestial bodies.
The questionnaire session was very lively with students involving with loads of questions. As the subject was opened out in an attractive way with the students, they felt free to explore and came out with doubts. Dr. Rajaram who stayed with us for the whole day interacted with the students throughout and extended his contacts to them. We are sure that there may be few transformations and some work progress among students with his support.

The second lecture started after the tea break. Dr. Ganashyam Krishna, who is completely involved into research on nano materials introduced the benefits of nano science in the present generation. Dr. MGK explained the concept of nanotechnology, starting from the definition, structure, physics at nano-levels, the challenges and the applications. He with various examples showed how these nano-materials can be applied in diverse fields like healthcare, information technology, energy storage, food, electronic industries, cosmetics etc. He explained how the special properties of nano-materials is being used in manufacturing of computer chips, mobile phones, CD’s and the research that is progressing towards using nanotechnology for creating new devices that are faster, lighter, stronger and more efficient. He differentiated NanoScience and Nanotechnology as two entities where nanoscience is simply the study of nanostructures of the order of 1-100nm, while nanotechnology is the ability to create and control objects on this same scale with the goal of preparing novel materials that have specific properties and thus, functions.

Dr. Ganashyam opened out the latest research works and the current developments in the field for the interested to explore. He even threw light on the various academic programmes offered in nanotechnology and the Universities that are offering the courses. Students interacted with the speaker and took more inputs. The students could imbibe the fact that nanotechnology is truly multi-disciplinary where physicists, life scientists, chemists and engineers could contribute.

After the lunch, the session by Dr. K P N Murthy kept the participants on their toes. The speaker spoke about thermodynamics opened out the various laws of thermodynamics. He with his humor and voice had complete command over the audience and the young group was spell bound. He demonstrated simple calculations to understand the different laws of thermodynamics and methods to arrive at theoretical proofs. He threw light on Carnot’s works and could show how he explained things in a simplified way. The speaker could make his points clear into the minds of the participants through different scenario. He introduced the various laws of thermodynamics by building over the simple concepts and showed that each law

The session concluded with questionnaire session. Many of the students interacted and clarified their doubts. The students have put a special request for an extended session. The intermediate students could also benefit from his lecture as he explored the basics of physics and made it more appealing. The day concluded with the positive note as students were all fully satisfied.

On the second day, the vice principal of the college, Mr. Viswanatham Bulusu addressed the gathering and congratulated them for their participation in such an exciting science lecture series which may prove as life changing opportunity for them. We had the first lecture by Prof. V Kannan, Pro-Vice Chancellor of University of Hyderabad, who is a mathematics genius. The session was started with Mr. Satyanarayana, introducing the concept of fractional dimension to the audience and he invited professor Kannan to throw more light on the topic. He discussed about ‘Fractional Dimension’. He started with the definition of dimension. He explained the contribution of various mathematicians towards this end. The various forms of dimensions and their measures and differences were discussed. The students could understand the main aim of fractional dimension and the current works being carried on in the field.

After the tea-break it was the day for young statisticians. Mrs. Parimala Sudheer introduced the topic and the speaker to the audience. She could through light on importance of statistics int the present day world. Dr. A L N Murthy, head, Indian Statistical Institute, Hyderabad, who was the next speaker explored the relevance of statistics to the society. He said that statistics is for understanding uncertainty, making valid inferences and having a scientific approach for problem solving. Statistics is a science that deals with planning, collection, compilation, summarization, presentation, analysis and interpretation of data. As per H G Well, who said "Statistical thinking would one day become as necessary for efficient citizenship as the ability to read and write", statistics is the skill required by everyone and there is a great need to understand it. Statistics finds its application in various fields like engineering, process, automobile, software, health, banking, business analysis, public utilities etc. He took few case studies to explain the application and importance of statistical analysis. He explained how statistics can be used for decision making, strategic planning etc. On the whole the lecture could create interest among
students to take up statistics as the carrier and the opportunities that persists for research in statistics. Students interacted with the speaker with great enthusiasm.

After the lunch it was the much awaited lecture on 'Cryptography'. The session was chaired by Mrs.Savitha Ramesh, who introduced cryptography beyond the art of secret writing. Cryptography deals with several aspects of security in communication apart from maintaining secrecy. It is responsible for authentication, privacy, digital signatures etc. Prof.Srinathan Kannan from IIIT, Hyderabad, who is an expert in cryptography network security, spoke on private key cryptography and the various factors effecting it. His talk was focused on mankind’s progress towards designing secure private key encryption schemes. He while introducing the topic highlighted on Kerckhoff’s principle, whose intention was ‘security must rely solely on the secrecy of the key and not on the method’. He explored the various classical ciphers with a comparison on their key space and security. Then he through light on the work on modern cryptography. He worked on the definition of secrecy with several assumptions and made it clear to the participants that we can achieve what we want by clearing understanding what is needed. The concept of pseudorandom numbers and their role in private key cryptography in enhancing the key space was clearly discussed with its mathematical perspective.

Students poured in with lot of doubts and interaction lead to the concepts of hacking and security issues. The question on what are the current research going on in the field opened out the possibility for exploring the subject.

The session was concluded with students sharing their experience on stage. Students were excited and said that they are looking forward for such sessions. Mrs. Savitha Ramesh rendered the vote of thanks. She commented that even if one student joins into the portal of research in science, she would consider the event as a success.

**List of Participant Colleges**

1. Aurora’s Degree and PG College
2. University of Hyderabad
3. St. Francis Degree College
4. SaiSudheer Degree College
5. Arunodaya Degree College
6. Loyalla Academy
7. Srinidhi Degree and PG College
8. Annibeasant Degree College
9. Jagruthi Degree and PG College
10. VNR College
11. University college for Women
ANUNĀD
.... Resonate Your Thoughts, with Action

SEQUENCE OF EVENTS

Day 1

10 a.m. - 10.15 a.m.  Inaugural
10.15 a.m. - 11.30 a.m.  Astronomy with radio waves
                         Prof. Rajaram Nityananda
                         Former Director - NCRA, Pune.
11.30 a.m. - 11.45 a.m.  Tea Break
11.45 a.m. - 01.15 p.m.  NanoScience
                         Prof. Ghanashyam Krishna
                         Reader School of Physics, University of Hyderabad.
01.15 p.m. - 02.30 p.m.  Lunch Break
2.30 p.m. - 04.30 p.m.  Thermodynamics
                         Prof. K.P.N Murthy,
                         Professor at School of Physics, University of Hyderabad.

Day 2

10.00 a.m. - 11.30 a.m.  Fractional Dimensions
                         Prof. V Kannan
                         Pro. Vice Chancellor, University of Hyderabad.
11.30 a.m. - 11.45 a.m.  Tea Break
11.45 a.m. - 01.15 p.m.  Statistics & its Relevance to Society
                         Prof. A.L.N.Murthy
                         Head, Indian Statistical Institute, Hyderabad
01.15 p.m. - 02.30 p.m.  Lunch Break
02.30 p.m. - 03.45 p.m.  Cryptography and Network Security
                         Prof. Srinathan Kannan
                         Professor at IIT, Hyderabad.
03.45 p.m.  Validictory