



**INDIAN INSTITUTE OF CHEMICAL ENGINEERS
AMARAVATI REGIONAL CENTRE
(IICChE-ARC)**



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Report on Third Prof. M. V. Rao Endowment Lecture

Dear All

We are very happy to note that 3rd Prof. M. Venkateswara Rao Endowment Lecture was successfully organized on 18th February 2025 by IICChE Amaravati Regional Centre in association with all student chapters under IICChE ARC and hosted by Rajiv Gandhi University of Knowledge Technologies, Nuzvid, Andhra Pradesh. Prof. Jagadish Chennupati, President, Australian Academy of Science delivered the 3rd Endowment lecture on **“Semiconductor Nanostructures for Optoelectronics, Energy, Sensors and Neuroscience Applications”**.

At 10.00 a.m. the program began with inviting the guests on to the dais by Ms. P. Lashmi Prasanna and Ms. A. Anvitha third year students of Chemical Engineering, Rajiv Gandhi University of Knowledge Technologies (RGUKT), Nuzvid. Ms. Ch. Sai Triveni and Ms. P. Yogini Bala second year students of Chemical Engineering from RGUKT started the event with a prayer followed by lighting the lamp by the dignitaries on the dais. Sri J. Murali Mohan, Chairman, IICChE Amaravati Regional Centre presided over the inaugural function and conducted the proceedings.



The dignitaries present off-line in the inaugural session;

- Prof. S. Amarendra Kumar, Director, Rajiv Gandhi University of Knowledge Technologies, Nuzvid, Andhra Pradesh
- Dr. V. Govardhana Rao, immediate past Chairman, IICChE ARC & Former Professor IITB, Mumbai

- Dr. M. Venkateswara Rao, Honorary Secretary, IChE Amaravati Regional Centre and Former Professor & Dean of Examinations, RVR & JC College of Engineering(A), Guntur
- Dr. B. Lakshmana Rao, Administrative Officer, Rajiv Gandhi University of Knowledge Technologies, Nuzvid
- Dr. Sadu Chiranjeevi, Dean, Academics & Assistant Professor, Department of Computer Science and Engineering, RGUKT, Nuzvid
- Dr. T. Durga Bhavani, Dean Student Welfare for Girls & Mentor in IT, RGUKT, Nuzvid
- Sri M. Madhusudhana Reddy, Assistant Professor & Head, Department of Chemical Engineering, RGUKT, Nuzvid
- Sri M. Ramakrishna, EC member IChE ARC & Assistant Professor, Department of Chemical Engineering, RGUKT, Nuzvid

The dignitaries present on-line in the inaugural session;

- Sri Jagarlamudi Murali Mohan, Chairman, IChE ARC and Managing Director, JOCIL Ltd. Guntur
- Prof. Jagadish Chennupati, Distinguished Professor & Head of Semiconductor, Optoelectronics & Nanotechnology group in the Department of Electronic materials, Australian National University, Australia & President, Australian Academy of Science
- Dr. Ajay Bansal, President, IChE and Professor, Department of Chemical Engineering & Registrar, Dr B R Ambedkar National Institute of Technology, Jalandhar
- Dr. R. Parthiban, Vice President, IChE and Professor, Department of Chemical Engineering, S.S.N. College of Engineering, Kalavakkam, Chennai
- Dr. Parag R Gogate, Vice President, IChE and Professor, Department of Chemical Engineering, Institute of Chemical Technology, Matunga, Mumbai
- Dr. C.V.V. Satyanarayana, Vice Chairman, IChE ARC and former Chief scientist, CSIR-NCL, Pune

Presiding over the inaugural session, Sri J. Murali Mohan, Chairman, IChE Amaravati Regional Centre warmly welcomed the IChE office bearers who joined on-line, viz., Prof. Ajay Bansal, President-IChE and the Chief Guest, Prof. R. Parthiban, Vice-president, IChE and Prof. Parag R Gogate- Vice-president, IChE both the Guests of Honour for the inaugural function, Prof. S. Amarendra Kumar Director, RGUKT, Nuzvid, Prof. Jagadish Chennupati, the distinguished speaker of the Endowment Lecture, other dignitaries on the dais, participants both on-line and off-line from different Universities/Institutions including RGUKT-Nuzvid, RVR & JC College of Engineering(A), Guntur, JKC College, Guntur, Vignan's Foundation for Science, Technology & Research (Deemed to be University), Vadlamudi, Guntur, NIT AP, Tadepalligudem, and many other Universities/Institutions across the country for Endowment Lecture. Due to unavoidable circumstances Sri J. Murali Mohan, is not able deliver the Chairman's message and requested Prof. V. Govardhana Rao, immediate Chairman IChE ARC the read out the Chairman's message, sent by Sri J. Murali Mohan, Chairman.



The Chief Guest Prof. Ajay Bansal, President IChE along with Prof. S. Amarendra Kumar, Director RGUKT inaugurated the event. In his inaugural message, Prof. Ajay Bansal welcomed all the participants both on-line and off-line who are attending the 3rd Prof Venkateswara Rao Endowment lecture. He congratulated Prof Rao for instituting an Endowment Lectures at the Amaravati Regional centre and also at the National level (headquarters of IChE). He appreciated Dr Rao for his active role both in Amaravati regional centre in

conducting many programmes useful to the students and faculty and in National level serving as a Council member of IChE. He also appreciated IChE Amaravati Regional Centre for securing either 1st or 2nd best Regional Centre awards many times in a short span of 10 Years of its establishment and Prof. Venkateswara Rao's active role. He spoke about the National education policy which allows the interested students to move into various inter-disciplinary programmes of their interest. He further added that the endowment lecture to be delivered today by Prof. Jagadish Chennupati is one such lecture where there is something interesting for each one of us and the lecture would surely give some research direction for the students and other research personnel working in various inter disciplinary programmes such as optoelectronics, energy, neuroscience using semiconductor nanostructures.



Prof. R. Parthiban, Vice President IChE graced the occasion as a Guest of Honour. He congratulated Prof. M. Venkateswara Rao for instituting the endowment lecture and appreciated him for his active role both in Amaravati Regional Centre and in National Council as a council member. He said that the applications of nanomaterials have been growing significantly and use of nanomaterials in photo voltaic cells has greatly improved the efficiency of the cells. He further added that the nanomaterials are the need of the hour by integrating them in renewable energy applications in promoting sustainable environment.

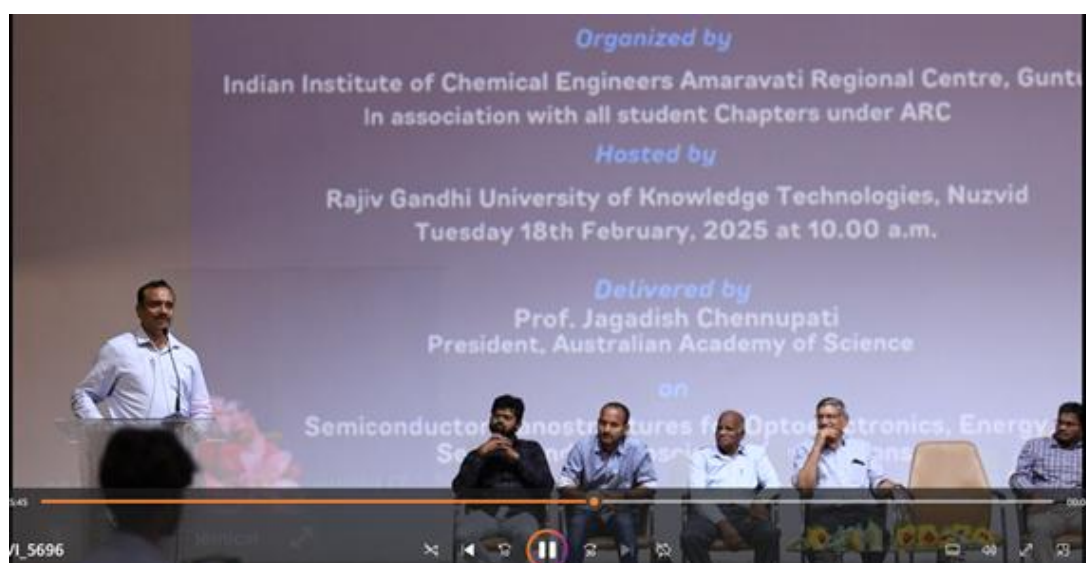


Prof. Parag R Gogate, Vice President IChE graced the function as Guest of Honour. In his message he mentioned about his personal relation with Prof. M. Venkateswara Rao and the various activities being organized by IChE for the benefit of the chemical engineering students. He said that the chemical engineers have a vital role in developing nanomaterials which have applications not only in chemical engineering but also in other areas such as electronics etc. He also appreciated Prof. Rao for instituting endowment lectures both at

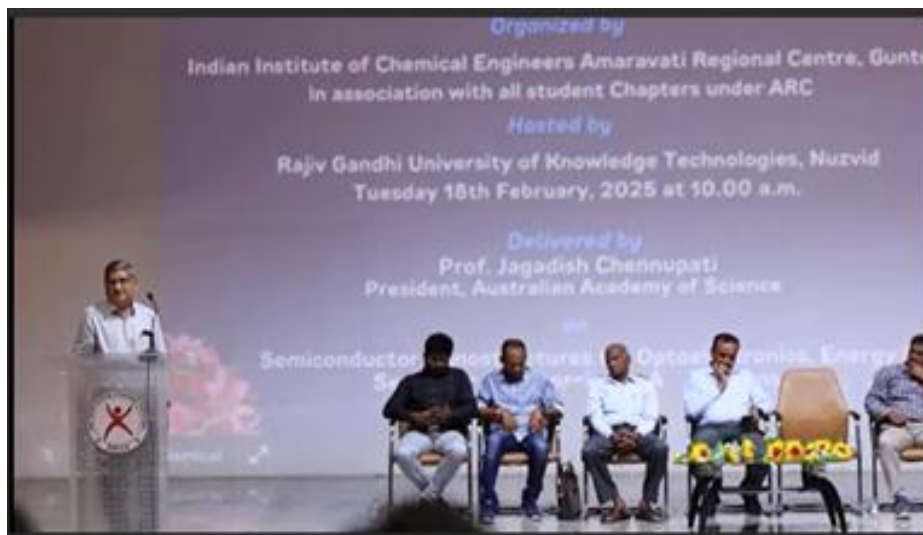
Amaravati Regional Centre and also at National level to expose chemical and allied engineering students, faculty and industry personnel to the current emerging technologies and practices.



Welcoming the on-line and off-line participants, Prof. S. Amarendra Kumar Director, Rajiv Gandhi University of Knowledge Technologies, Nuzvid appreciated the IChE Amaravati Regional Centre for organizing an Endowment Lecture in the name of Prof. M. Venkateswara Rao and also the other activities organized by IChE ARC. He also assured that the Institute will cooperate and extend all support to organize many more activities by IChE ARC at RGUKT, Nuzvid Campus in future too.



Prof. M. Venkateswara Rao said that the Endowment Lecture instituted by him with the support of ARC members as one of the annual events of IChE ARC is to motivate chemical & allied engineering student community especially in ARC region and expose them to the emerging technological developments and practices of Chemical & allied Engineering and Chemical Industry. He briefly narrated about his journey from a rural background to the university level education in a city, the social and technological challenges he faced and how he overcame them. It is with this background, he said, that he intended to institute an annual endowment lecture to expose the students to the advanced technological developments in chemical & allied engineering at regular intervals through this lecture. He also expressed his gratitude to all guests for gracing the occasion and the distinguished speaker Prof. Jagadish Chennupati for accepting to deliver the Endowment Lecture and the Director, RGUKT, Nuzvid for hosting the Endowment Lecture.



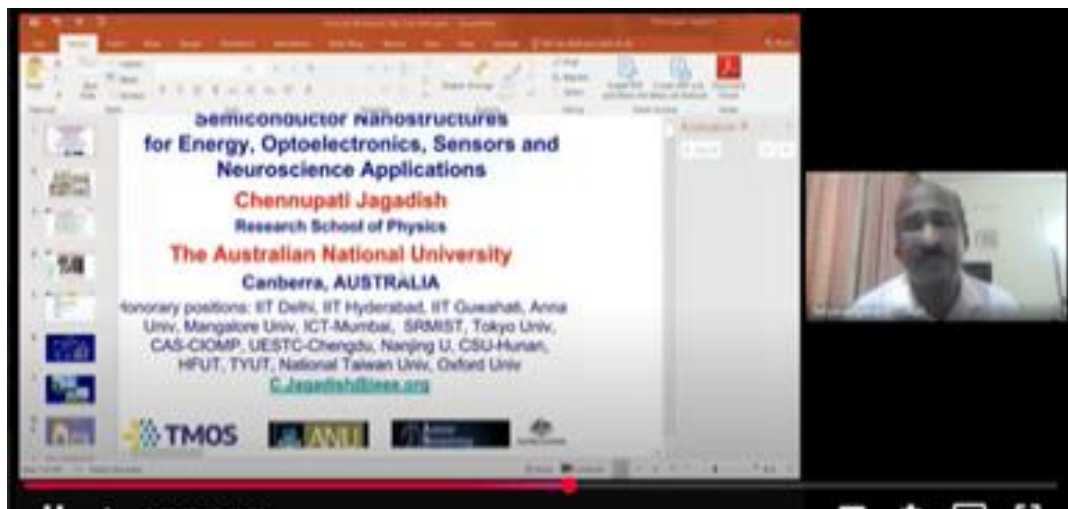
Dr. V. Govardhana Rao, former professor IITB, Mumbai and immediate past Chairman, IChE ARC Chaired the Endowment Lecture Session and conducted the proceedings. Chairing the session, Dr. V. Govardhana Rao said that nanomaterials is a multidisciplinary area and chemical engineers can play a major role in synthesizing nanomaterials and they have wide applications in the products we use in our daily life. He further added that today's distinguished speaker Prof. Jagadish Chennupati is going to deliver the 3rd endowment lecture of Prof. M. Venkateswara Rao on Semiconductor Nanostructures applications in Optoelectronics, Energy and Neuroscience and Prof. Jagadish is a true visionary, a great scientist and leader in the field of nanoscience, nanotechnology and semiconductor nanostructures. He has dedicated his career to finding innovative solutions for Optoelectronics, Energy, sensors, Neuroscience applications and many more . He is associated with many top research groups across the world and we are fortunate to be in the presence of such a great scientist delivering a lecture in a multi-disciplinary area of significant importance in emerging technologies relevant to the societal needs.



After brief introduction of the topic and the speaker, Dr. Govardhana Rao invited Dr. C. V. V. Satyanarayana, Vice Chairman, IChE ARC to introduce the distinguished speaker Prof. Jagadish Chennupati to the audience. Dr. Satyanarayana formerly introduced Prof. Jagadish to the august audience by saying the following:

Prof. Jagadish Chennupati has obtained his B.Sc. (Physics) Degree from Acharya Nagarjuna University, M.Sc. (Tech) Degree in Applied Physics (Electronics) from Andhra University and M.Phil. & Ph.D. Degrees in Physics from Delhi University. He has worked as Lecturer in Physics and Electronics at Sri Venkateswara College, Delhi University during 1985-1988. He was a post-doctoral fellow in Engineering Physics at Queen's University, Kinhston, Ontario, Canada during 1988-1990. Prof. Jagadish has joined Australian National University in 1990 and established and heading Semiconductor Optoelectronics and Nanotechnology Group. He is currently Distinguished Professor of Physics and Engineering. He published more than 1000 research

papers (780 journal papers) and supervised more than 75 Ph.D. students and 50 post-doctoral fellows. He delivered more than 250 plenary/keynote/invited talks at prime conferences in the world and collaborated with scientists from 30+ countries. He has been elected as a Fellow of 14 Science and/or Engineering Academies of USA, UK, Australia, India, Europe, China and a Fellow of 16 professional societies such as IEEE, MRS, APS, AAAS. He has received many awards including UNESCO Medal for his contributions to nanoscience and nanotechnology, IUMRS Somiya award for his contributions to materials research, IEEE Photonics Society Engineering Achievement Award, IEEE Pioneer Award in Nanotechnology, Boas Medal and Lyle Medal for his contributions to Physics, Optica Nick Holonyak Jr. Award for his contributions to optoelectronics, ECS Thomas D. Callinan Award. Prof. Jagadish has received Australia's Highest Civilian Honour, Companion of Order of Australia in January 2016 from the Governor General of Australia and Pravasi Bharatiya Samman Award in January 2023 from the President of India for his contributions to science and technology and education. Prof. Jagadish and his wife Vidya have established "The Chennupati and Vidya Jagadish Endowment" at the Australian National University to support Bachelors/Masters students and young scientists in physics to visit Australian National University for 3 months to gain research experience and to develop collaborative networks. He is currently serving as the President of the Australian Academy of Science and in the past served as President of IEEE Photonics Society (2018, 2019), IEEE Nanotechnology Council (2008, 2009) and Australian Materials Research Society (2016-2019). His achievements and contributions to the society are great inspiration for all the young students, scientists and teachers to work hard and contribute to the society whatever they could.



After introduction of the speaker, Dr. Satyanarayana warmly invited Prof. Jagadish Chennupati to deliver the 3rd Endowment Lecture of Prof. M. Venkateswara Rao saying that we are very much privileged to have him today as the speaker for this lecture.

Congratulating Prof. M. Venkateswara Rao for instituting the endowment lecture and appreciating the IICHe ARC for inviting him to deliver the Endowment Lecture, Prof. Jagadish Chennupati covered various aspects of semiconductor nanostructures in energy, optoelectronics and neuroscience applications. He highlighted the importance of semiconductor applications in the area of energy transition from fossil fuels to renewable sources in the context of global warming and climate change. The fossil fuels-based energy which has increased many folds over the last a few decades have significantly increased the emission of greenhouse gases causing global warming and has a great impact on the environment. Unexpected catastrophic disasters across the world, melting of ice glaciers, rising sea levels, increased frequency of forest fires, loss of biodiversity etc are the indicators of climate change. The 2/3rd CO₂ concentration in the atmosphere is due to use of fossil fuels in the power plants. Prof. Chennupati referred the Intergovernmental Panel on Climate Change (IPCC) held in Paris in 2015 where world leaders agreed to limit the mean surface temperature rise to 2 °C, preferably to 1.5 °C compared to pre-industrial levels and to achieve carbon neutral by 2050. He also said there are global challenges to reduce greenhouse gases by switching over to renewable sources of energy (solar, wind, hydro, nuclear etc) from fossil fuel-based energy to limit the CO₂ levels in the atmosphere below 500 ppm. Policy changes are needed to generate 16 TW energy from renewable sources by 2050 to mitigate global warming. Jagadish emphasized hydrogen energy to de-carbonize the various sectors such as transport, buildings, chemicals, and iron and steel and power generation.

Potential of renewable energy sources

- 2009 estimate of finite and renewable planetary energy reserves (Terawattyears).
- Total recoverable reserves are shown for the finite resources. Yearly potential is shown for the renewables.

21

In the context of electricity generation and hydrogen production, He said that there is limitless availability of solar radiation for thermal energy, power generation and explained various solar cell technologies, solar concentrators, solar cell efficiencies in converting solar radiation to electricity, solar cell efficiency verses band-gap energy of different semiconductors, perovskite solar cells for high performance and low production costs, energy storage by hydro pumping, electrochemical batteries etc. He also dealt the current technological developments and the use of nanostructures in the area of optoelectronics and neuroscience.

Why Hydrogen?

Storable energy carrier

No greenhouse gas emissions

$H_2 + O_2 \rightarrow H_2O$

Energy dense

Atterdorf et al. Year Chem. 14, 1214–1223 (2022)

Wide applications and usage

CSRO National Hydrogen Roadmap (2018)

71

The lecture by Dr. Jagadish Chennupati is the source of motivation to the participants to work in the area of semiconductors and their applications especially in the area of hydrogen energy transition for decarbonization.

Overall, the lecture was very informative, inspiring and stimulating experience to all the participants, especially the students and the young scientists exposing them to the current technological advances of semiconductor nanostructures in the area of energy transition from fossil fuels to renewable sources of energy for decarbonization of the environment and in the area of neuro science applications.

At the end, Sri M. Ramakrishna, Assistant Professor, Department of Chemical Engineering, RGUKT, Nuzvid & Executive Committee member of IChE ARC proposed the vote of thanks.

Total number of participants (both online & offline) is around **670** (570 students & 100 faculty & working professionals). The huge response of the participants across many regions of the country is the testimony how curious and enthusiastic the participants are to listen to the Endowment Lecture.

As per the feedback from the participants, Prof. Jagadish Chennupati delivered a highly informative, inspiring and thought-provoking lecture on “Semiconductor Nanostructures for Optoelectronics, Energy, Sensors and Neuroscience Applications”. The participants suggested the organizers to conduct many more events in future.

(Dr. M.Venkateswara Rao)

Honorary Regional Secretary, IChE Amaravati Regional Center



సారశక్తి నుంచి హైడ్రోజన్ ఉత్పత్తి

నూజివీడు రూరల్, న్యూస్ టుడే: సోలార్ పవర్ నుంచి హైడ్రోజన్ ఉత్పత్తికి అనేక పరిశోధనలు జరుగుతున్నాయని ఐఐఐఐఐ హెచ్ఐ అధ్యక్షుడు ప్రొ.అజయ్ బస్సల్ తెలిపారు. మంగళవారం నూజివీడు ట్రిపుల్ ఐటీలో నానో టెక్నాలజీ, అప్లికేషన్ నిర్వహణపై సెమినార్ నిర్వహించారు. ఈ సెమినార్ను ప్రొ.అజయ్ బస్సల్ నూజివీడు ఆర్డీయూకేటీ డైరెక్టర్ రిజిస్ట్రార్ ప్రొ.సండ్ర అమరేంద్రకుమార్తో కలిసి ప్రారంభించారు. ఆస్ట్రేలియాన్ అకాడమీ ఆఫ్ సైన్స్ అధ్యక్షుడు ప్రొ.జగదీష్ చెన్నుపాటి మాట్లాడుతూ శక్తి మూలాల నుంచి హైడ్రోజన్ ఉత్పత్తి, సోలార్, గాలి వంటి వనరులను ఉత్పత్తి చేసే పద్ధతులు, పోలో వోల్టాయిక్ సెల్స్, సోలార్ సామర్థ్యంపై వివిధ సమస్యలను వివరించారు. అమరేంద్రకుమార్ మాట్లాడుతూ ఇండియన్ ఇన్స్టి



జ్యోతి వెలిగించిన అనంతరం అజయ్ బస్సల్, అమరేంద్రకుమార్

ట్యూట్ ఆఫ్ కెమికల్ ఇంజనీరింగ్, అమరావతి రీజినల్ సెంటర్ నిర్వహిస్తున్న పలు కార్యక్రమాలను ప్రస్తావించి అభినందించారు. ఐఐఐఐఐ హెచ్ఐ డెపట్టీ డిప్యూటీ కార్యక్రమాలకు తన మద్దతు ఉంటుందని ప్రకటించారు. ఈ కార్యక్రమంలో ఐఐఐఐఐ హెచ్ఐ వైస్ ప్రెసిడెంట్లు ప్రొ.ఆర్.పార్థిబన్, ఆర్.పరగ్ గోగట్, గౌరవ కార్యదర్శి ఎం.వెంకటేశ్వరరావు, ఐఐఐఐఐ హెచ్ఐ ఏఆర్సీ చైర్మన్ జాగదీష్ మూరళీ మోహన్, ఐఐఐఐఐ హెచ్ఐ మాజీ ప్రొఫెసర్ వి.కోవర్తనరావు, ఐఐఐఐఐ హెచ్ఐ ఏఆర్సీ ఉపాధ్యక్షుడు సీవీవీ సత్యనారాయణ, ఆర్డీయూకేటీ ఏవో లక్ష్మణరావు, డీన్ ఆకడమిక్స్ చిరంజీవి, కెమికల్ ఇంజనీరింగ్ విభాగం హెచ్ఐవోడీ ఎం.మదుసూదన రెడ్డి, కోఆర్డినేటర్ ఎం.రామకృష్ణ, పీఆర్సీ రాజేశ్ తదితరులు పాల్గొన్నారు.

Date : 19/02/2025 EditionName : ANDHRA PRADESH(ELURU) PageNo :



మన ఉరి వార్తలు.. మన వే2న్యూస్లో, డాన్లడ్ way2news Friday, 02/02/2025

నూజివీడు: నానో టెక్నాలజీ పై సెమినార్ నూజివీడు ట్రిపుల్ ఐటీ కళాశాలలో మంగళవారం నానో టెక్నాలజీ పై సెమినార్ నిర్వహించారు. ప్రాఫెసర్ అజయ్ బస్సల్, ఆస్ట్రేలియాన్ అకాడమీ ఆఫ్ సైన్స్ అధ్యక్షులు సీనియర్ లెక్చరర్ ప్రాఫెసర్ జగదీష్ చెన్నుపాటి లు సీమీ కండక్టర్ నానో స్ట్రక్చర్ లు - న్యూరో సైన్స్ అప్లికేషన్ లు అనే అంశంపై విద్యార్థులకు వివరించారు. క్యాంపస్ డైరెక్టర్ అమరేంద్ర కుమార్, అధ్యాపక బృందం, విద్యార్థులు పాల్గొన్నారు.



భవిష్యత్ నానో టెక్నాలజీ

నూజివీడు టౌన్, ఫిబ్రవరి 18 (ఆంధ్ర జ్యోతి): ప్రపంచ భవిష్యత్ నానో టెక్నాలజీపై ఆధారపడి ఉందని ఆస్ట్రేలియా అకాడమీ ఆఫ్ సైన్స్ అధ్యక్షుడు ప్రొఫెసర్ చెన్నుపాటి జగదీష్ అన్నారు. నూజివీడు ట్రిపుల్ ఐటీ క్యాంపస్లో నానో టెక్నాలజీ, అప్లికేషన్స్పై సెమినార్ నిర్వహించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా హాజరైన ఆయన మాట్లాడుతూ సెమీ కండక్టర్ నానోస్ట్రక్చర్, ఎన్ఆర్జీ సైన్సెస్, న్యూరో సైన్స్ అప్లికేషన్స్ అనే అంశాల పై ఆయన విద్యార్థులకు వివరించారు. ట్రిపుల్ ఐటీ డైరెక్టర్ అమరేంద్రకుమార్, అమరావతి ఇన్స్టిట్యూట్



సెమినార్ను జ్యోతిప్రజ్వలన చేసి ప్రారంభిస్తున్న దృశ్యం

ఆఫ్ కెమికల్ ఇంజనీరింగ్ ఉపాధ్యక్షులు ఆర్. పార్థిబన్, ఆర్.పరగ్ గోగట్, ఎం.వెంకటేశ్వరరావు విద్యార్థులకు పలు అంశాలను వివరించారు.