

ANDHRA CHRISTIAN COLLEGE, GUNTUR  
(Day, Evening and PG)

NOTICE

Date:29-07-2019

This is to inform you that there will be a two day seminar on Radiation Chemistry and.. Employment opportunities in ALCORN State University, USA, from tomorrow i.e, 30<sup>th</sup> and 31<sup>st</sup> July 2019, conducted by Chemistry Department at 11.00 AM. Dr. Jeremiah K. Billa Ph.D, Chairman, Department of advanced technologies, ALCORN State University, USA, will address the seminar.

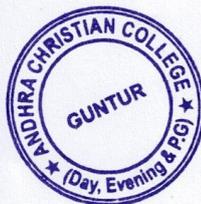
All the students of B.Sc (M.P.C. and CBZ) are asked to attend the programme without fail.

*G. Devakumari*

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(Day, Evening & P.G)  
GUNTUR

Copy to:

1. The coordinator, IQAC, Andhra Christian College.
2. The office manager, Andhra Christian College.



**Andhra Christian College, Guntur**  
**Department of Chemistry**  
**Seminar Report**

**Topic: Radioactivity and its applications**

**Dates: 30<sup>th</sup> & 31<sup>st</sup> July 2019**

**Introduction**

The department of Chemistry, Andhra Christian College, Guntur, organised a seminar on Radioactivity and its applications on July 30<sup>th</sup> 2019 and a talk on Career and Employment Opportunities in ALCORN University on 31<sup>st</sup> July 2019. The seminar featured Dr. Jeremiah K.Billa Ph.D., Chairman, Department of Advanced Technologies, ALCORN State University, USA. The seminar was held under the guidance of Dr.N.J.Solomon Babu, Head of the department of Chemistry.

**Objectives of the seminar**

The primary objectives of the seminar are,

1. To understand how radiation is used in agriculture and various industries.
2. To understand the difference between diagnostic and therapeutic radiation.
3. To get awareness about radioactivity as a source of heat for satellites, for medical imaging, for targeted cancer treatments etc.

**Seminar Proceedings**

The seminar started at 10.30 AM in J.D. Seelam seminar hall, with an introductory speech by the HOD of chemistry, Dr. N. J. Solomon Babu. He welcomed the resource person, Dr. Jeremiah K. Billa and all the participants. Dr. N. J. Solomon Babu emphasized the importance and applications of Radioactivity in various fields, and introduced Dr. Jeremiah K. Billa, the speaker of the day. Later, Dr. Jeremiah K. Billa gave an elaborate talk on the topic Radioactivity and its applications with a number of illustrations. This is followed by live interaction with students, who participated actively with enthusiasm.

**Key points covered**

Radioactivity and its applications:

Radioactivity is the property exhibited by certain types of matter which emit energy and subatomic particles spontaneously.

An unstable nucleus will decompose spontaneously, or decay, into a more stable configuration by emitting certain particles or certain forms of electromagnetic energy. Radioactive decay is a property of several naturally occurring elements as well as of artificially produced isotopes of the elements. Radioactive isotopes have the same chemical properties as stable, but they emit radiation, which can be detected. If we replace one or more atoms with radioisotopes in a compound, we can track them by monitoring their radioactive emissions. This type of compound is called radioactive tracer or radioactive label..

**Applications**

**Medicine:** Radioisotopes have found extensive use in diagnosis and therapy, and this has given rise to a rapidly growing field called nuclear medicine. These radioactive isotopes have proven particularly effective as tracers in certain diagnostic procedures... Though many radioisotopes are used as tracers, iodine-131, phosphorus-32, and technetium-99m are among the most important. Physicians employ iodine-131 to determine cardiac output, plasma volume, and fat metabolism and particularly to measure the activity of the thyroid gland where this isotope accumulates. Phosphorus-32 is useful in the identification of malignant tumours because cancerous cells tend to accumulate phosphates more than normal cells do. Technetium-99m, used with radiographic scanning devices, is valuable for studying the anatomic structure of organs.

**Industry:** Foremost among industrial applications is power generation based on the release of the fission energy of uranium. Other applications include the use of radioisotopes to measure the thickness or density of metal and plastic sheets, to stimulate the cross-linking of polymers, to induce mutations in plants in order to develop hardier species, and to preserve certain kinds of foods by killing microorganisms that cause spoilage. In tracer applications radioactive isotopes are employed, to measure the effectiveness of motor oils on the wearability of alloys for piston rings and cylinder walls in automobile engines.

**Science:** Research in the Earth sciences has benefited greatly from the use of radiometric-dating techniques to determine the ages of various rocks and rock formations and thereby quantify the geologic time scale. A special application of this type of radioactivity age method, carbon-14 dating, has proved especially useful to physical anthropologists and archaeologists. It has helped them to better determine the chronological sequence of past events by enabling them to date more accurately fossils and artifacts from 500 to 50,000 years old.

Radio isotopic tracers are employed in environmental studies, as, for instance, those of water pollution in rivers and lakes and of air pollution by smokestack effluents. They also have been used to measure deep-water currents in oceans and snow-water content in watersheds. Researchers in the biological sciences, too, have made use of radioactive tracers to study complex processes. For example, thousands of plant metabolic studies have been conducted on amino acids and compounds of sulfur, phosphorus, and nitrogen.

### **Interactive session**

The presentation was followed by an interactive session, the students got clarified their doubts and discussed various aspects of the topic with the resource person and expressed their gratitude for his valuable presentation.

### **Conclusion**

The seminar was concluded with vote of thanks by Dr.N. J. Solomon Babu, HOD of chemistry. The students also took the opportunity to express their gratitude and appreciation to the speaker for providing a deeper understanding about the topic. The seminar attained its objectives successfully as the students were very much motivated by the seminar.

## Acknowledgements

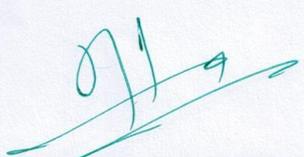
The Department of Chemistry, Andhra Christian College, Guntur, extends its heartfelt gratitude to Dr. Jeremiah K. Billa, for his valuable presentation in the seminar. Special thanks to the faculty members and students for their active participation and support.





**STUDENT ATTENDANCE**

S.No. Y <sub>18</sub>	Class No.	Name of the student	Signature of the student
1	601	K. Akhila	Akhila.k
2	602	M. Vajram	M. Vajram
3	603	S. Mahalakshmi	S. Mahalakshmi
4	605	B. Jyothi	B. Jyothi
5	611	K. Tulasiram	K. Tulasiram
6	612	Ch. Love Prasanna	Ch. Love Prasanna
7	614	B. Prakash	B. Prakash
8	619	K. Kiran Kumar	K. Kiran Kumar
9	621	R. Ravi Kiran	R. Ravi Kiran
10	624	M. Enosh	M. Enosh
11	901	B. Chinni	B. Chinni
12	904	A. Prabhavathi	A. Prabhavathi
13	905	B. Yamini	B. Yamini
14	906	M. Roja Ramani	M. Roja Ramani
15	907	J. Divya	J. Divya
16	908	Y. Keerthana	Y. Keerthana
17	912	Ch. Ashok Kumar	Ch. Ashok Kumar
18	913.	Ch. Venkateswara Rao	Ch. Venkateswara Rao
19	914	B. Nagendra Babu	B. Nagendra Babu
20	1001	G. Keerthana Pushpalatha	Keerthana Pushpalatha

  
HEAD, CHEMISTRY DEPARTMENT  
A.C. COLLEGE, GUNTUR.

## STUDENTS ATTENDED THE SEMINAR

S.No. Y <sub>19</sub>	Class No.	Name of the student	Signature of the student
1	601	M. Naga Srivaishnavi	M. Naga Srivaishnavi
2	602	D. Mosha Rani	D. Mosha Rani
3	604	Ch. Mounika	Ch. Mounika.
4	605	K. Smiley	K. Smiley
5	610	K. Pawan chand	K. pawan chand
6	612	J. Emmanuel Raj	J. Emmanuel Raj
7	613	S. Isaiah	S. Isaiah
8	615	M. Ratna Babu	M. Ratna Babu
9	622	T. Bhagya Raj	T. Bhagya Raj
10	626	T. Siva Purva Chandra	T. Siva Purva Chandra
11	903	M. Hema Latha	M. Hema Latha
12	912	S. Vinay Kumar	S. Vinay Kumar
13	913	C. Issac Abraham	C. Isaac Abraham
14	915	P. Srikanth	P. Srikanth.
15	918	P. Yesu Das	P. Yesu Das
16	921	V. Vamsi	V. Vamsi
17	922	V. Dileep Kumar	V. Dileep Kumar
18	924	Ch. Naga Raju	Ch. Naga Raju
19	925	S. Prasheela	S. Prasheela
20	930	D. Ramya	D. Ramya

9/19  
 HEAD, CHEMISTRY DEPARTMENT  
 A.C. COLLEGE, GUNTUR.