

Kathan

# KATHAN-49

ज्ञानम् यजामहे ।

HAPPY REPUBLIC DAY



### Editorial Team

Dr. Shrikant J. Wagh (Provost)  
Dr. Snehal Lokhandwala (Dean Sci. & Sustainability)  
Dr. Vinitha Vakkayil (Assistant Professor-MSH)  
Mr. Shivang Ahir (Assistant Professor-ME)  
Mr. Hiren Jariwala (Assistant Professor-EE)  
Mrs. Rupali Attarde (Assistant Professor-CO)  
Mrs. Dhara Rojivadiya (Lecturer-CE)  
Ms. Amishi Popat (Assistant Professor-EST)  
Mr. Apurba Chakraborty (Assistant Professor-CT)  
Dr. Manik Sil (Assistant Professor-M.Sc.)

### Ankleshwar Rotary Education Society

Mrs.Sandra Shroff, Chancellor, UPL University  
Mr. Ashok Panjwani President, UPL University  
Mr. Angiras Shukla Secretary, ARES  
Mr.Kishore Surti ,Treasurer, ARES

### In this issue...

1. Republic day Celebrations
2. Technical Article
3. Faculty Achievements
4. Selfcare-Article
5. Best student chapter-IIChE
6. Essay Writing on G-20 theme
7. Students' Corner

# Student Editorial team



**Jeet Solanki**

BE Co 2<sup>nd</sup> sem

**Jane Anthony**

6<sup>th</sup> sem CT



**Anjali Yadav**

2<sup>nd</sup> Sem M.Sc

**Priti Pal**

6<sup>th</sup> sem EST  
sem EST



**Darshan Prajapati**

4<sup>th</sup> Sem computer Eng.

**Prince Patel**

6<sup>th</sup> sem ME



**Dipali Patel**

4<sup>th</sup> Sem CE.

**Nisha Pandey**

4<sup>th</sup> sem B.Sc



**Himanshu Dubey**

6<sup>th</sup> sem ME

**Hinkal Tapiyawala**

8<sup>th</sup> sem EST



**Jane Anthony**

6<sup>th</sup> sem CT



**Dhvanan Raja**

2<sup>nd</sup> sem De computer eng.



# Republic Day Celebrations

Department of Environmental Science & Technology of UPL University of Sustainable Technology organized 74<sup>th</sup> Republic Day Celebrations at University campus. Flag hoisting was done at the hands of the Chief Guest, Rtn. Kamlesh Dand. Mr. Ashok Panjwani – President UPL University of Sustainable Technology, Dr. Shrikant J. Wagh, Provost UPL University of Sustainable Technology, Dr. Omprakash Mahadwad, Dean – Engineering, Dr. Snehal Lokhandwala Dean – Science & sustainability, Members from Rotary, HODs, Faculty members and staff attended the flag hoisting ceremony. Celebrations included Flag Hoisting followed by cultural programmes of dance and music by the students of UPL University of Sustainable Technology. The event was streamed online for students and other distant viewers. Programme ended successfully with high tea and refreshments.

UPL University of Sustainable Technology



# Technical Article:

## Solutions for the Electrification of Next-gen Commercial and Agricultural Vehicles (CAVs)

As a result of goals established in emissions rules in many parts of the world to reduce greenhouse gas and pollutant emissions from transportation, electric propulsion has just emerged and is redefining transportation. In addition to passenger cars, electricity also powers an increasing number of commercial vehicles, such as trucks, buses, and vans, as well as machinery used in construction and agriculture. These vehicles are consequently more effective, quieter, and eco-friendly than their forerunners who relied on combustion engines.

As for passenger cars, Infineon Technologies is also focused on providing solutions for the electrification of commercial construction and agriculture vehicles (CAVs). We know how commercial vehicles come in all shapes and sizes and offer solutions to every transportation task. No other means of transport provides such flexibility combined with top quality and offers a tailor-made concept for every possible transport requirement. When it comes to passenger transport, commercial vehicles are again leading the field, and buses are the most environment-friendly form of passenger transport.

UPL University of Sustainable Technology

# Megatrends for CAVs-Article

The megatrends for CAVs, shown in the lower side of Figure below, are essentially three: electrification, safety & ADAS (Advanced Driver-Assistance System), and connectivity. Electrification of CAVs is mainly driven by the need to reduce CO<sub>2</sub> emissions, due to the increase in regulations globally.

Commercial vehicles



Construction vehicles



Agricultural vehicles



## Megatrends for commercial vehicles

Electrification



Safety & ADAS



Connectivity



Commercial construction and agriculture vehicles, such as long-haul trucks or buses, have to meet special requirements and besides reliability, durability and profitability, they have to be eco-friendly and energy efficient. The European Council adopted a CO<sub>2</sub> emission standard according to which new trucks will have to cut emissions by 15% from 2025, and by 30% from 2030. Also in the USA, the Environmental Protection Agency (EPA) published a proposed rule to reduce pollution levels which will start in the year 2027.

“We have over 15 years of experience in electro-mobility, with more than 18 million pieces already shipped”, said Marlene Wuercher, Global Distribution Marketing Manager of Automotive at Infineon Technologies. She also added, “The fact that 17 out of 25 new electric vehicles are powered by Infineon devices proves our commitment to quality, enhanced by additional qualification tests performed on our products”.

### Power modules

As for the hybrid packs, Infineon’s lead device will allow scaling to inverted performance at a faster rate of production.

“The Hybrid-PACK Drive is a series of power modules which share the same footprint and allow scaling of inverter performance quickly and without a major system redesign”, said Wuercher.



The family’s lead type is the FS820, an 820A/750V six-pack module optimized for 150 kW inverters. It comes with press-fit pins for the signal terminals, avoiding time consuming selective solder processes and providing cost savings on system level. The FS820 features a PinFin baseplate for an optimized direct fluid cooling, enabling high current density. Other options are available, such as the wave product derivate (FS770), which offers optimized costs for fluid cooling with a Ribbon-bond baseplate, the FS660 which has a flat baseplate, and the FS950 which introduces Silicon Nitride ceramic resulting in highest power rates

The FS300, a 1200V/300A six-pack IGBT, offers the highest power density for compact inverter design.

Besides the Hybrid-PACK family, which covers a wide range of power needs on most of passenger cars and also on the lower power levels of CAVs, Infineon offers other product families that complete its portfolio for CAV applications. The Econo-DUAL family, which includes modules with various topologies spread in different ranges of powers, is the most applied product family in trucks and buses (Figure 2). In addition, the Prime PACK family, which includes half-bridge and chopper configurations, offers high power density and reduces the inverter size. Both these two families cover the power demand of heavier vehicles, especially construction vehicles and agriculture machines.

We are able to calculate the lifetime of our products based on the vehicle's operation cycle. More specifically, we can calculate how the temperatures in the chip will behave, since temperature variation is the most important factor which affects the chip's lifetime", said Luciana Caminha Afonso, System Architect, Application of Commercial, Construction and Agriculture Vehicles at Infineon Technologies. This is due to the fact that the chip is composed by different materials, and each of them has a different coefficient of temperature expansion. With the same temperature swings, each of these materials will expand and contract in a different way and, with a longer operation time, you will start having some kind of disconnections among those materials.

## References

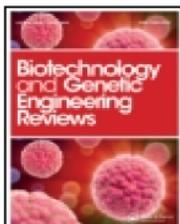
[1] <https://www.eeweb.com/solutions-for-the-electrification-of-next-gen-commercial-and-agricultural-vehicles-cavs/>

[2] <http://challenges-and-solutions-for-cav-electrification>

# FACTUALY ACHIEVEMENTS

## PAPERS PUBLISHED BY FACULTY MEMBERS IN DEPARTMENT OF CHEMICAL ENGINEERING & SRICT INSTITUTE OF SCIENCE & RESEARCH

Congratulations to Dr.Alok Gautam, Dr.Shina Gautam & Dr.K. Nagaraj!!



### Biotechnology and Genetic Engineering Reviews



ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/tbgr20>

## Formation of polyhydroxyalkanoates using agro and industrial waste as a substrate – a review

Rekha Kanzariya, Alok Gautam, Sachin Parikh, Maulin Shah & Shina Gautam

To cite this article: Rekha Kanzariya, Alok Gautam, Sachin Parikh, Maulin Shah & Shina Gautam (2023): Formation of polyhydroxyalkanoates using agro and industrial waste as a substrate – a review, Biotechnology and Genetic Engineering Reviews, DOI: [10.1080/02648725.2023.2165222](https://doi.org/10.1080/02648725.2023.2165222)

To link to this article: <https://doi.org/10.1080/02648725.2023.2165222>



Article

## Co-Pyrolysis Behavior, Kinetic and Mechanism of Waste-Printed Circuit Board with Biomass

Sonalben B. Prajapati <sup>1,2</sup>, Alok Gautam <sup>2,3,\*</sup>, Shina Gautam <sup>2,3,\*</sup>, Zhitong Yao <sup>4</sup>, Fiseha Tesfaye <sup>5,\*</sup> and Xiaoshu Lü <sup>6</sup>

<sup>1</sup> Chemical Engineering Department, Government Engineering College, Bhuj 370001, India

<sup>2</sup> Department of Chemical Engineering, Gujarat Technological University, Chandkheda, Ahmedabad 382424, India

<sup>3</sup> Chemical Engineering Department, Shroff S. R. Rotary Institute of Chemical Technology, UPL University of Sustainable Technology, Bharuch 393135, India

<sup>4</sup> College of Materials and Environmental Engineering, Hangzhou Dianzi University, Hangzhou 310018, China

<sup>5</sup> Johan Gadolin Process Chemistry Centre, Åbo Akademi University, Henrikinkatu 2, FI-20500 Turku, Finland

<sup>6</sup> Department of Electrical Engineering and Energy Technology, University of Vaasa, P.O. Box 700, FIN-65101 Vaasa, Finland

\* Correspondence: [alokgautam2002@gmail.com](mailto:alokgautam2002@gmail.com) (A.G.); [shinaiitd@gmail.com](mailto:shinaiitd@gmail.com) (S.G.); [fiseha.tesfaye@abo.fi](mailto:fiseha.tesfaye@abo.fi) (F.T.)

## Green Synthesis, Characterization and Efficient Photocatalytic Study of Hydrothermal-Assisted Ag@TiO<sub>2</sub> Nanocomposites

K. Nagaraj

# Self-Care

- ▶ Self-care is one of those words that therapists use, forgetting that the rest of the population has never heard of it. Basically, it is a noun referring to taking care of your own emotional well-being.
- ▶ Self-Care works on two levels. First, the obvious- it allows you to take care of yourself, to nurture yourself. Second, it subconsciously sends you the message that you deserve to be taken care of, which can help increase your self-esteem, self-worth, and happiness.
- ▶ Self-care doesn't need to take up a lot of time. Even the busiest person could build in five minutes a day to do some deep-breathing or to call a friend. Explore how self-care can fit into your schedule. Show yourself that YOU are just as important as the other responsibilities in your life.
- ▶ Self-care can mean adding one thing into each day that you can look forward to. It could be watching your favorite TV show, taking an extra-long shower, or spending five minutes in silence- whatever works for you.
- ▶ Just because you 're feeling happy, doesn't mean that self-care isn't necessary. It is still important to pay attention to your needs and feelings, and to nurture yourself.

## How to Take Care of Yourself: Building a Personalized Self-care Plan:

- Emotional
- Environmental
- Financial
- Intellectual
- Occupational
- Physical
- Social
- Spiritual

The eight dimensions, if kept in healthy balance, generally predict higher levels of wellness.

- Emotional – Talk to someone, reflect, journal, read, do something artistic, listen to music, work out, take a walk, watch something that suits the mood (or does the opposite and changes it), cry it out , cuddle, laugh, take a nap.
- Environmental – Take a walk somewhere nice, breathe in fresh air, enjoy the sun, enjoy the night sky, avoid littering, pick up litter, reduce waste, use reusable products, recycle, clean your house, redesign a room.
- Financial – Develop a practical financial plan, open a savings account, start saving , try saving even more if you are already saving, invest, cut back on unnecessary purchases, consider where you can cut corners, avoid credit cards, ask for a raise.
- Intellectual – Read, listen to audiobooks, watch documentaries, complete puzzles, be mindful of the world around you, become curious, try something new, tap into your creative/artistic side, take a class, complete a program, graduate.

- Occupational – Learn a trade, get your degree, train for a promotion, accept the promotion, put together your resume, polish your resume, apply for your dream job, take on a task you enjoy, open your own business.
- Physical – Work out daily, take a walk, eat healthy, get your annual check-up , take medications as prescribed, get 7-9 hours of sleep, see the physician when you do not feel well.
- Social – Meet up with friends and family, keep in contact with old friends, volunteer, go out, have fun, engage in healthy social media use, exude positivity, utilize technology when distance is a factor, have a big laugh.
- Spiritual – Meditate, pray, reflect, engage in yoga, visit a meaningful site, do right by others, be mindful, consider your higher purpose and meaning, look to your higher power for support, love one another, help those in need.

Self-care is an important activity to do every day. Doing so will lead toward a better balance among your dimensions of wellness and lead toward improved overall health and wellness. Life is precious, and it is meant to be enjoyed



Ms. Jahnavi Tiwari

B.E Computer Engineering(4Th Sem)

UPL University of Sustainable Technology

# BEST STUDENT CHAPTER AWARD

- ▶ Student Chapter of Chemical engineering of UPL University of sustainable technology was awarded the best chapter award. Congratulations!!



# Essay writing competition on “Anti-corruption Laws in G-20 countries”.



Essay Writing Competition  
on



**“Anti-corruption Laws in G20 Countries”**

Language of writing: English, Hindi, Gujarati

Registration Link: <https://forms.gle/hn6D8vPXNB3huKt26>

On 31<sup>st</sup> January 2023 at 11:30 am at Seminar Hall 1  
Venue: SRICT Building, UPL University Campus.

For any query please contact:  
Ms. Richa Dubey, Asst Prof. EE Dept  
Dr. Vinitha Vakkayil, Asst Prof. MSH Dept

Essay competitions were organised under aegis of Azadi ka Amrut Mahotsav on 31st January, 2023. There were 9 students who registered for the event. The English Essay writing was co-ordinated and evaluated by Dr. Vinitha Vakkayil, Assistant Professor in MSH Department and Hindi & Gujarati Essay competitions were organised and evaluated by Ms. Richa Dubey, Assistant Professor, Department of EE.

The topic of the Essay writing was “Anti-corruption Laws in G-20 countries”.

The winners are as follows:

1. English Essay Writing- Pathan Vajid Khan
2. Hindi Essay Writing- Vinayak Bajirao Sonawane
3. Gujarati Essay Writing- Patel Dipali K



# STUDENT'S CORNER

## Failure is good for success-Poem

Failure teaches people that they are just like everybody else, and that success is gained from hard work and determination. When people fail at something important in their lives and decide to try again, they tend to regain their confidence and persist with great resilience.

Failure won't kill you but your fear to fail just may keep you from success.

Success is good but failure is better.

You must not let successes get to your head but also must not let failure consume your heart. Know that,

sometimes, actually most times, things don't go as planned and that is perfectly fine.

Time moves, circumstances change, and goals shift.

One benefit of failure is that it gives you a chance to reassess your goals and where you want to go.

Whatever your goal, you are going to experience hurdles and set backs along the way. I haven't met one person who thinks you can cruise your way to success ,luckily.



Chinmay Patel  
(210102101028)  
BE CE -4th Sem



**UPL UNIVERSITY**  
OF  
SUSTAINABLE TECHNOLOGY

## **SHROFF S.R. ROTARY INSTITUTE OF CHEMICAL TECHNOLOGY**



**Block No. 402, Vataria, Ankleshwar-Valia Road, Ta: Valia,  
Dist: Bharuch-393135,**



**9727745875/76**



**[admission@upluniversity.ac.in](mailto:admission@upluniversity.ac.in)**



(Reach Us)



(For More Info)

**Follow us**

