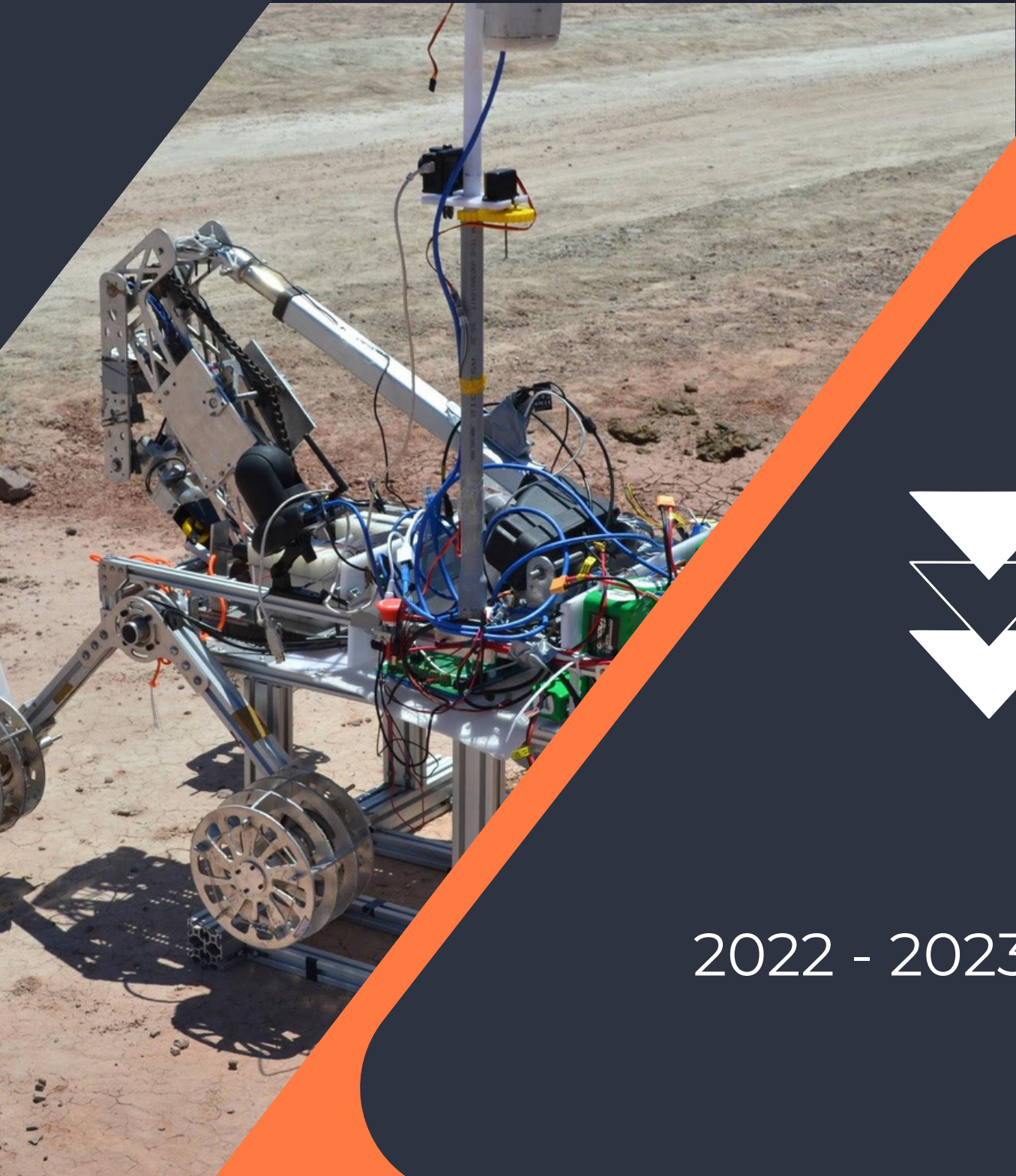


NEW RESEARCH INITIATIVES



2022 - 2023

Director's Message

IIT Madras continues to retain her top position for the eighth consecutive year, in the National Institute Ranking Framework, thanks to the world-class research of its faculty and students. The contribution and support of Alumni and well-wishers like you has crucially helped this standing and stature. Our achievements in research, education, innovation and entrepreneurship have also earned us the recognition of an 'Institute of Eminence' as well as the top position in the Atal Innovation Ranking from the Government of India.



The institute is making an indelible mark with her 'research with impact' in several areas including quantum computing, drinking water technology, industrially relevant mathematical models for governance, rendering cancer-cure more effective. Our centres of excellence, the Center for Innovation, Nirmaan – the pre-incubator, the Incubation Cell, technology centres such as 'IITM-Pravartak' and others, work in unison for not just our nation's building, but societies world-wide. We aspire to be locally impactful and globally relevant through all these efforts.

Towards exploring new research frontiers, a Department of Medical Sciences and Technology has been launched to conjoin medicine and engineering. Similarly, a School of Sustainability is on the horizon to research sustainable practices in the Global South. The campus is moving towards 'carbon-net-zero' goal through water conservation by 100% recycling, efficient garbage disposal, and electrification of vehicles. The traditional education system is undergoing a paradigm shift, with our online Bachelor of Science programme in Data Sciences and the National Program of Technology Enhanced Learning, that have won Gold in the 'Lifelong Learning' category and Silver in the 'Best Online Program' category of the Wharton-QS Reimagine Education Awards 2022 respectively. IIT Madras is leading this revolution from the front.

Such achievements are not possible without the deep-rooted faith and support of alumni and well-wishers such as yourself. We are indebted to you for your generous, bountiful, and impactful contributions. On behalf of IIT Madras, I offer you our deepest gratitude for continuing to strengthen the Institute. Together with your support, we are confident of building an IIT Madras that is more inclusive, diverse, and enabled by an ecosystem to be nationally relevant and globally recognised. Thank you!

Dean's Message

I express my heartfelt gratitude to you for your generous support to IIT Madras. We appreciate your passion in supporting the causes you do and I assure you that your contributions will be optimally utilized. This report has been compiled to convey how your largesse has touched lives and made a difference at IIT Madras.



In keeping with the rapid, contemporary strides in science, technology we have set ambitious goals for ourselves – your continued enthusiasm and support will help us greatly in these endeavours.

IIT Madras is far more diverse in its set of pursuits, more green and more research-focused. And yet, it remains unchanged over these years, it is still the best Institute in the country, and attracts the best students that India has to offer to come and make a mark. I also cordially invite you to visit your campus to see for yourself, the impact of your contribution, and the growth and transformation the Institute has undergone over the years.

We can never express our gratitude enough for all that you have done –
Thank You !



New Research Initiatives

There are many things that help people and the world to have a better future. Science, technology and innovation plays a vital role in every sphere of life and education is no exception.

The funds received for New Research Initiatives were used towards the New Faculty Initiation Grant for the financial year 2022 - 2023.

New Faculty Initiation Grant

We should embrace our immigrant roots and recognize that newcomers to our land are not part of the problem, they are part of the solution.

-Roger Mahony

The New Faculty Initiation Grant is provided for the new faculty members of the institution to help them kick-start their research in the institution. It will aid in meeting the requirements of the research initiatives.

This grant is helpful to the new faculty in various ways like the purchase of equipment, travel expenses related to the research, purchase of software etc. It has also been instrumental in influencing them to start new research initiatives. Research of social importance are being carried out with this grant which is slowly impacting the society.



Grantees of the Scheme

Name : Dr. Dawand Sudam G.
Designation : Assistant Professor
Department : Chemistry



Title of the Project

Study of Cycloaddition Reactions of Tropones
with Vinyl Cyclopropanes and Quinoline-N-oxides

Brief Objectives of the Research

- Development of cycloaddition reactions of tropone via transition metal and organo-catalysis to synthesize heterocycles of pharmaceutical importance
- Study reactivity and mechanism of tropones in the presence of transition metal catalysts
- Optimization of reaction conditions to achieve higher selectivity and yields
- Study of substrate scope and limitations
- Application of the developed methodology to synthesize relevant biologically active molecules

Highlight of the Scheme's Utility towards the Research

- We have Procured the chemicals and glassware required for the smooth functioning of the project
- We have prepared various vinyl-cyclopropanes and quinoline-N-oxide derivatives as reacting partners for desired cycloaddition reactions with tropones.
- We are conducting derivatization of the tropones as reactive seven membered substrates.
- Also, we are screening the cycloaddition reactions of tropone and derivatives with vinyl cyclopropanes and quinoline-N-oxides in presence of transition metal catalysts, and organocatalysts.

Gratitude Note

"I thank our alumni for providing the generous donation towards research and development. These funds really help a lot to the newly joined faculty members for exploring their ideas. I again thank all donors for providing the New Faculty Initiation Grant."

Grantees of the Scheme

Name : Dr. Aslam Kunhi Mohammed
Designation : Assistant Professor
Department : Civil Engineering



Title of the Project

Molecular dynamics of cementitious materials

Brief Objectives of the Research

To initiate setting up of basic needs required to build my research group on molecular modeling of cementitious materials

Highlight of the Scheme's Utility towards the Research

- The NFIG received is being utilized to buy workstation that can relay my computational jobs to the high performance computing facility
- Use funds for any immediate travel needs to conferences or meeting within India that will help provide visibility to my research focus

Gratitude Note

"It is quite helpful for young faculties to receive this donation from the alumni of IITM. As an alumnus of IITM, I share your love towards our institute and I trust your cooperation in making our institute reach greater success."

THANK YOU

Thank you for your sustained generosity to IIT Madras over the years. Your support has helped us recognize and celebrate the achievements of many deserving individuals. We hope you are

Our efforts to nurture the culture of academic excellence that is the hallmark of IIT Madras, quality education, cutting-edge research, and unfettered creativity shall continue. We are privileged and humbled to have you and your family walking with us along this trial.



Indian Institute Of Technology Madras, Chennai - 600036

www.iitm.ac.in

For more information please contact:
Office of Alumni and Corporate Relations
+91-44-2257 8390 | www.acr.iitm.ac.in
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June 2023