

Organic Chemistry

Organic Synthesis and Material Science



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8 (PA,PO, RTD)/14 (Post-Doc, PhD)

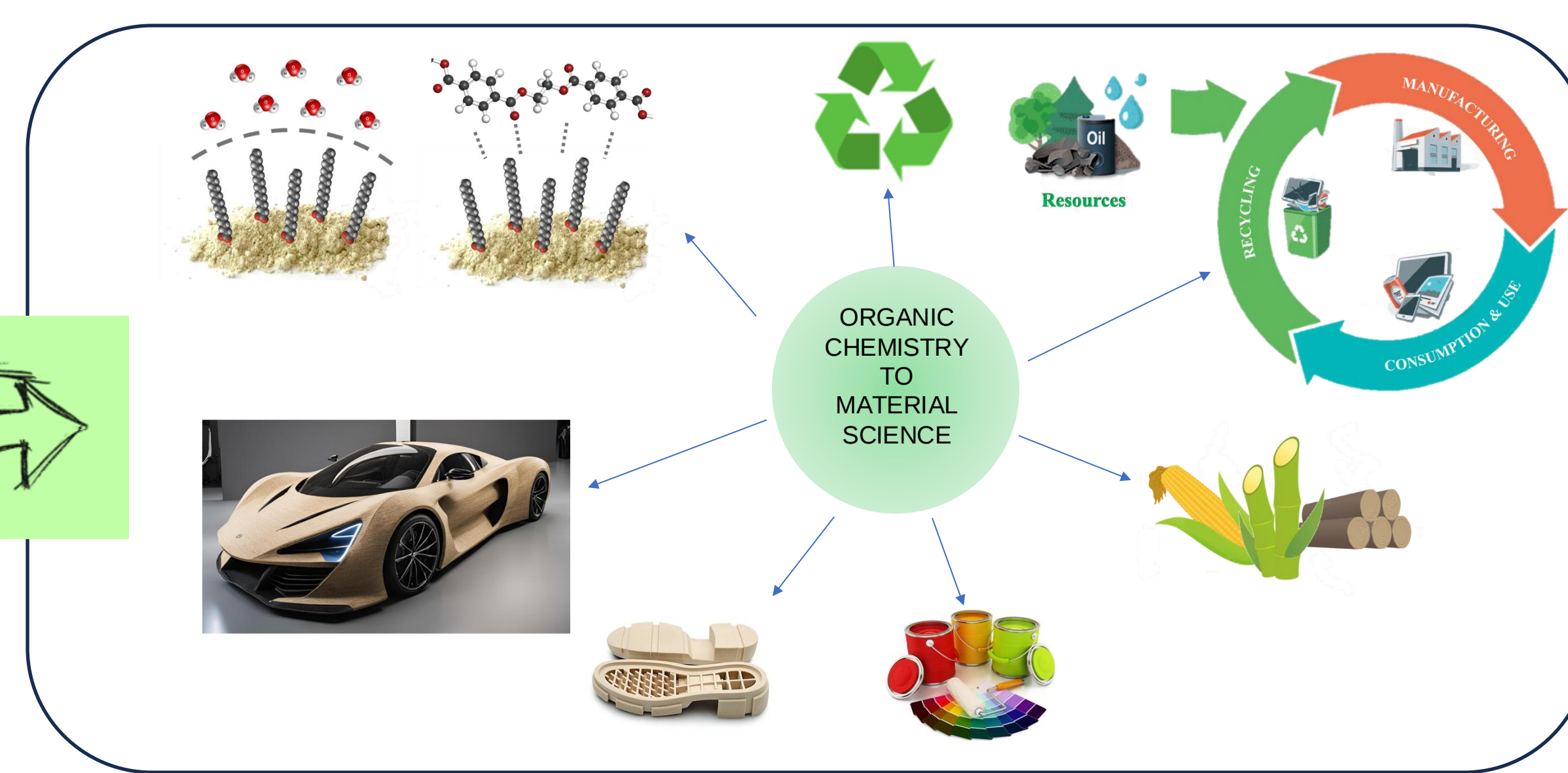
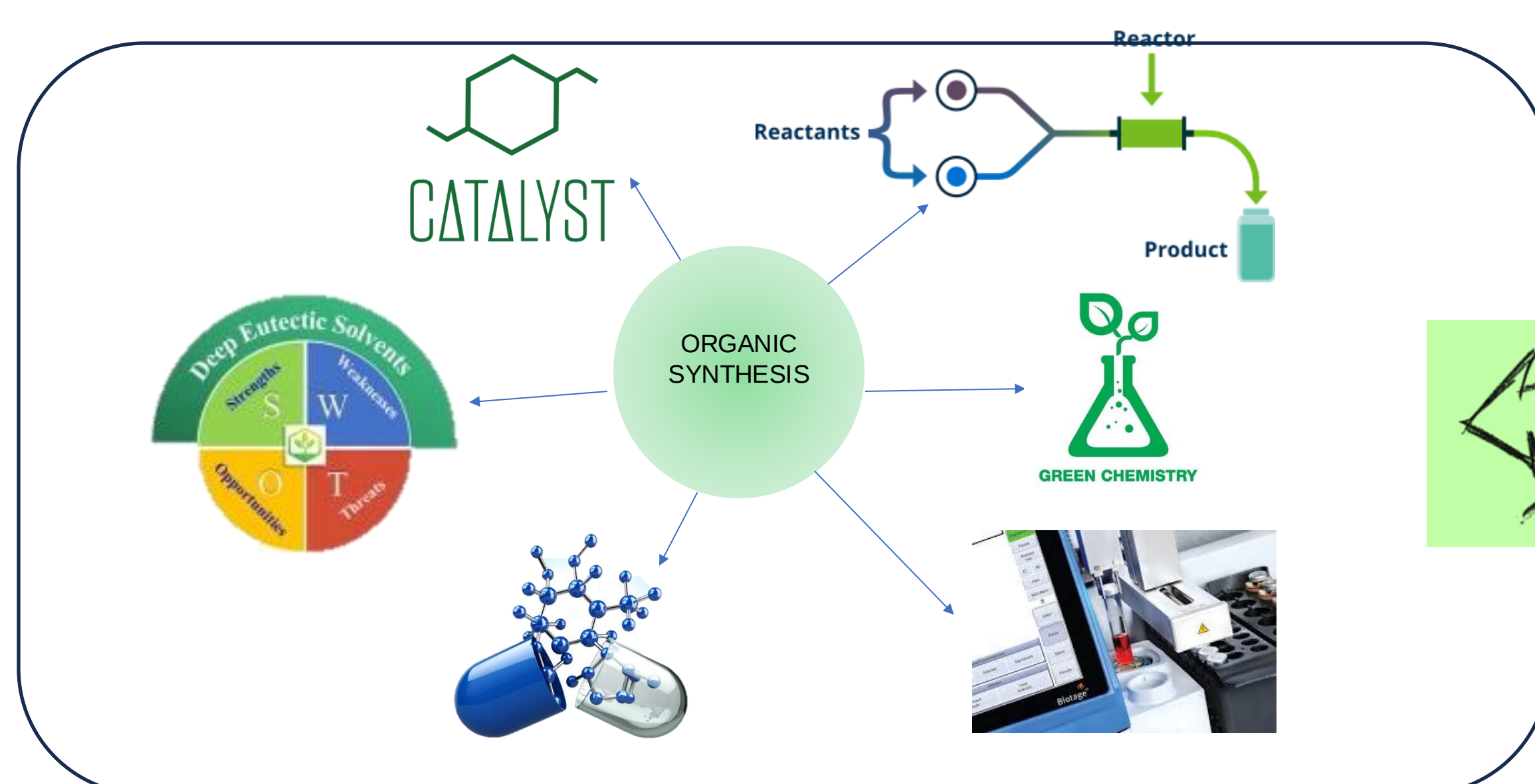
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Applied organic chemistry involves applying its principles and techniques in several fields, such as pharmaceuticals, materials science, agriculture, and biochemistry, by synthesising, analysing, and testing organic compounds for specific uses. Here are some areas where applied organic chemistry is prevalent: i) Designing and synthesizing new biological compounds, enhancing the synthetic methodologies from a greener point of view. ii) Polymer Science: Creating and modifying organic polymers in plastics, textiles, and coatings. iii) Organic chemistry and Chemical Biology: Design and synthesis of organic small molecules of pharmacological interest against complex diseases. iv) Environmental Chemistry: Assessing and mitigating the effects of organic pollutants on the environment. v) Biotechnology: Using organic compounds in biocatalysis, metabolic engineering, and the production of biofuels.



Organic Synthesis

The pivotal research program of organic chemistry groups is the discovery of organic transformations using new sustainable and low-energy consumption processes using unconventional methods and cutting-edge technologies. In particular, flow chemical synthesis, one-pot processes, microwave-assisted organic synthesis, the use of light as a clean catalyst, and the use of solid heterogeneous systems have been successfully applied over the years for preparing highly functionalized organic molecules and key heterocyclic systems, which allow progresses to be made in the allied fields of chemical biology and medicine.

Organic Chemistry Applied to Material Science

The organic chemistry applied to material science represents a point of reference for promoting collaboration and knowledge sharing between the world of research and the industrial sector pivotal approach in the use and reuse of raw and secondary materials in the field of new materials, with particular attention to the use of biomaterials and the circular economy. Therefore, the research is always focused on interdisciplinary aggregation initiatives with other research groups operating in the many areas of Chemical Sciences, without taking attention away from other units with which collaborations and paths focused on engineering aspects are established.

Sources of funding

MUR

- PRIN 2022PNRR
Progetto_P2022HSF3R - CUP J53D23014790001
- NEST Spoke N. 4
Progetto N. PE00000021 - CUP D33C22001330002
- PRIN 2022PNRR CUP I53D23006560001- Grant
Assignment Decree Non. 1409
- EUROPEAN PROJECT «Green Synks» LIFE12,
env/it/000736
- EUROPEAN PROJECT «Green Composites» 2021,
SAP-ENV-CEQL-IT/101074703
- 10 POR-FESR Regional Projects 2024

Research contracts with companies

- INDENA S.p.A., Elantas Europe SpA, Santoni SpA, AIPOL SpA, TRIO Srl, Biochica Srl, Pantofola D'Oro SpA, F.Ili Guzzini Srl, Simeg Srl, Delta Plados Srl, iGuzzini SpA, Producta Srl, Suoloficio Squadroni Srl, Veloce Srl, HP Composites SpA, Nanotech Srl, Dompè SpA, Boheringer SpA.

National and International Impact:

The group's commitment is demonstrated by the many scientific collaborations with Italian and foreign universities and by the many scientific collaborations directly financed by companies in the materials sector.

