

Innovative catalysts for Sustainable Hydrocarbon Transformation

Bifunctional Zeolite based Catalysts and Innovative process for Sustainable Hydrocarbon Transformation

BiZeolCat 

Dr Aitor Gual

Unit of Chemical Technologies - **EURECAT**

17th November 2020

UNPRECEDENTED
VIRTUAL FORUM

 **EXPOQUIMIA**
Encuentro Internacional
de la Química



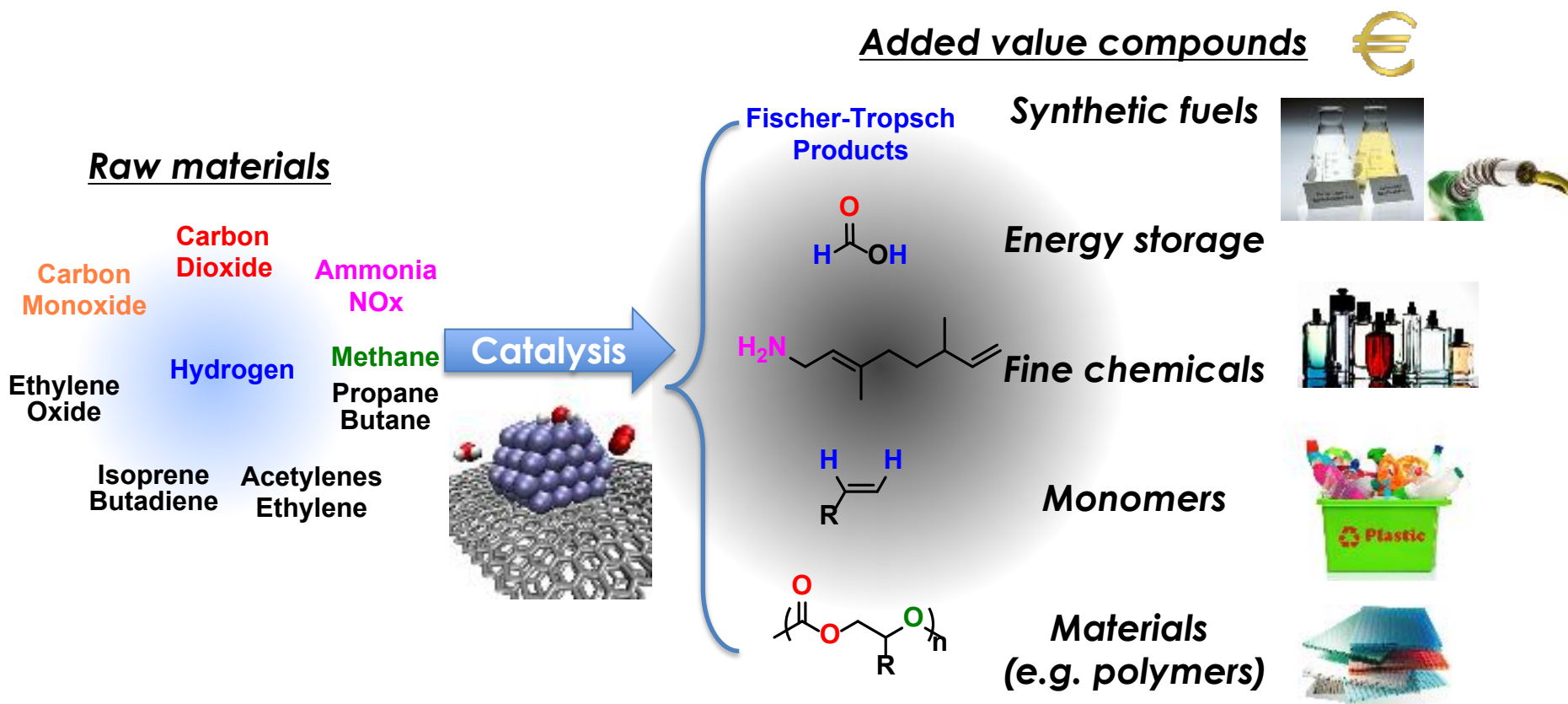
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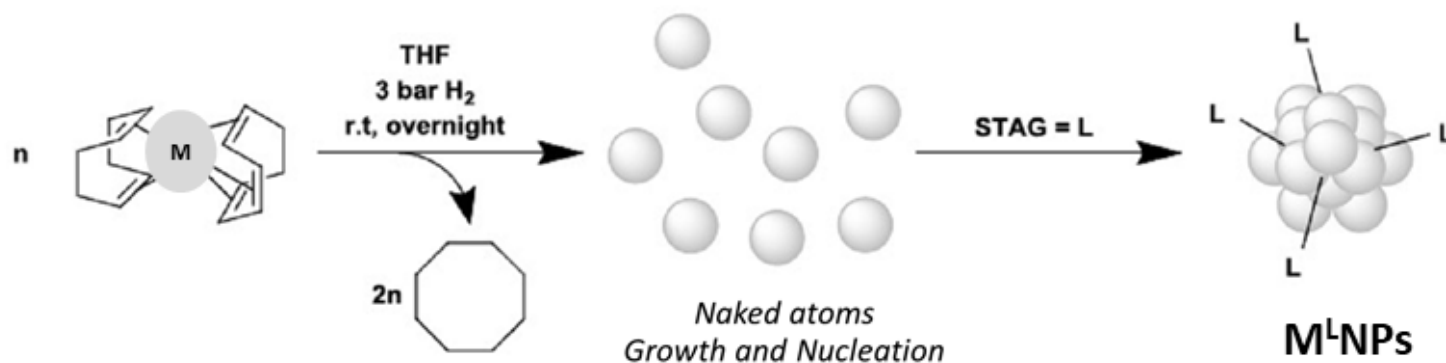


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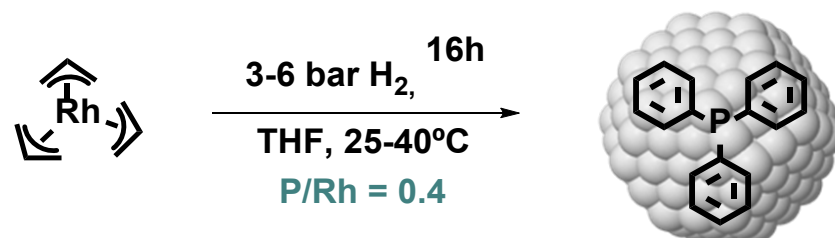
- Development of new catalytic systems and synthetic pathways:
 - ✓ To add value on raw materials
 - ✓ To achieve new types of reactivity





Properties:

Control (small) size and shape,
well defined compositions and clean surfaces,
isolable and “re-dissolvable”,
soluble in organic solvents,
reproducible synthesis and
tuneable catalytic properties.



Claver and co-workers, *Chem. Commun.* **2008**, 2759;
ChemSusChem. **2009**, 2, 769.; *Catal. Sci. Technol.* **2013**, 3, 2828;
ChemCatChem. **2014**, 6, 3160; *RSC Adv.*, **2015**, 5, 97036; *ACS Catal.* **2015**, 5, 4568; *J. Catal.*, **2017**, 354, 113; *Chem. Commun.*, **2017**, 53, 7894; *Chem. Eur. J.*, **2019**, 25, 8321.

H2020 Project : “Bifunctional Zeolite based Catalysts and Innovative process for Sustainable Hydrocarbon Transformation” (**BIZEOLCAT**, ID: **814671**).

H2020 Call: CE-NMBP-24-2018 - Catalytic transformation of hydrocarbons (**RIA**).

48 month project: 1st January 2019-to-31st December 2022.

Budget: € 6 571 837,50.



Innovative
methodologies



higher
performance



environmental
sustainability



cost
efficiency



<https://cordis.europa.eu/project/id/814671/es>

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What are BIZEOLCAT's objectives?

-20%

Greenhouse gases emissions

-30%

Use of fossil fuel

-20%

Energy consumption

-20%

Investment costs

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PART. No	PARTICIPANT	ORG TYPE	COUNTRY
1	FUNDACIO EURECAT (EUT , COORD)	RTO	ES
2	UNIVERSITETET I OSLO (UiO)	RTO	NO
3	TECHNISCHE UNIVERSITEIT EINDHOVEN (TUE)	RTO	NL
4	SINTEF AS (SINT)	RTO	NO
5	CENTRE NAT. RESERCHE SCIENTIFIQUE (CNRS)	RTO	FR
6	KEMIJSKI INSTITUT (NIC)	RTO	SI
7	EUROPEAN RES. INSTITUTE CATALYSIS (ERIC)	OTH	BE
8	ASO. ESPAÑOLA DE NORMALIZACION (UNE)	OTH	ES
9	STRANE INNOVATIONS SAS (STR)	SME	FR
10	NEXT CHEM, SRL (NC)	LG	IT
11	TURKIYE PETROL RAFINERILERY (TUP)	LG	TR
12	PERSTORP AB (PERS)	LG	SE
13	COMPAÑÍA ESPAÑOLA PETROLEOS (CEPSA)	LG	ES



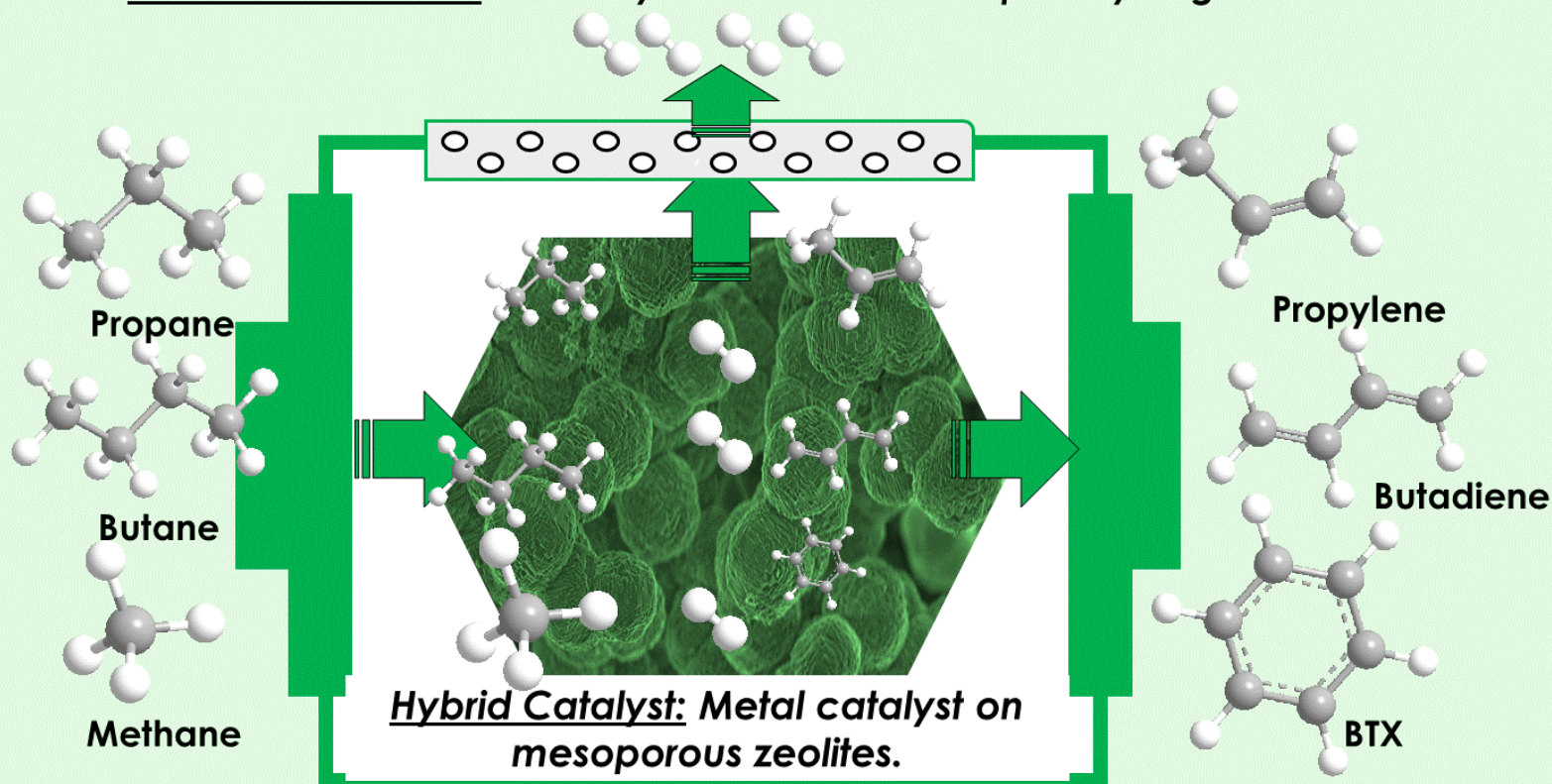
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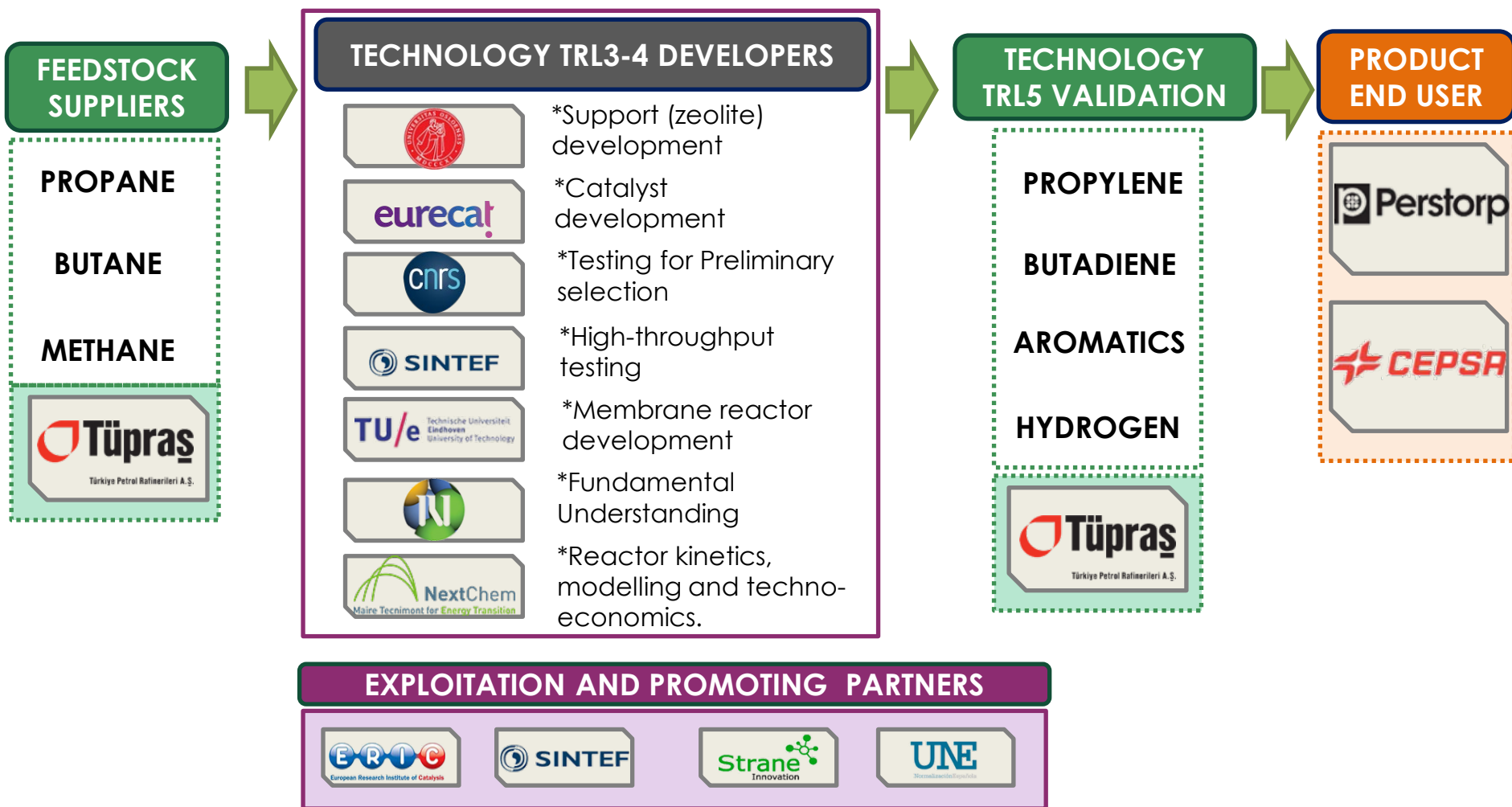
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To develop (TRL 3 to TRL 5) alternative production of light olefins and aromatics from light hydrocarbons (C1,C3 and C4).

Membrane reactor: Recovery and valorisation of pure hydrogen.



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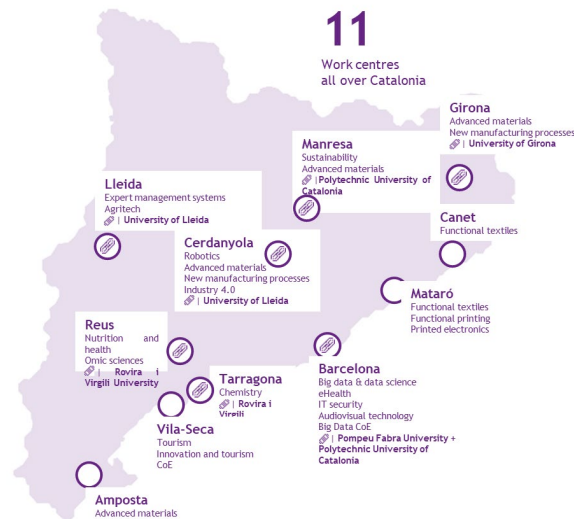
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RAW MATERIALS:

PROPANE
+ BUTANE +
METHANE



INNOVATION:

CATALYST
+
MEMBRANE
REACTOR



ADDED VALUE CHEMICALS:

POPRYLENE +
BUTDADIENE +
AROMATICS

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