

5th EuChemS Conference on Green and Sustainable Chemistry

26-29 September 2021 / Virtual Conference

The 5th EuChemS Conference on Green and Sustainable Chemistry (5th EuGSC) was co-organized virtually on 26-29 September 2021 by the Division of Green and Sustainable Chemistry (DGSC) of the European Chemical Society (EuChemS) and the Association of Greek Chemists (AGC). The 5th EuGSC was endorsed by EuChemS, the Hellenic Green Chemistry Network and the Department of Chemistry of Aristotle University of Thessaloniki. It was the fifth of a series of EuChemS successful conferences on Green and Sustainable Chemistry that started eight years ago in Budapest (2013), followed by the conferences in Lisbon (2015), York (2017) and Tarragona (2019).

The 5th EuGSC conference offered the opportunity to discuss the latest developments in green & sustainable chemistry and to disseminate the philosophy and principles of sustainable development and circular (bio)economy. The topics of the 5th EuGSC covered the broader field of green chemistry and technology with more emphasis on green solvents, sustainable catalytic and synthetic processes, biomass conversion to fuels, chemicals and polymers, CO₂ utilization, alternative fuels and green energy, benign low-energy chemical processes, nanomaterials for energy and the environment, pollution prevention and remediation, computational chemistry, green chemistry metrics and environmental assessment, sustainable industrial processes, waste recycle and valorization, and circular (bio)economy.

The conference program consisted of:

- 6 Plenary and 12 Keynote Lectures
- 124 Oral and 20 Mini-Oral (in three parallel sessions)
- 123 Poster presentations

Four Special Issues will be dedicated to the 5th EuGSC, in the Elsevier journals “Catalysis Today”, “Sustainable Chemistry and Pharmacy”, “Current Opinion in Green and Sustainable

Chemistry”, and “European Polymer Journal”, featuring selected high-quality papers presented at the conference.

The conference opened with the addresses of:

- Prof. Konstantinos Triantafyllidis, Chair of the Conference
- Prof. Efstratios Stylianidis, Vice Rector for Research and Lifelong Learning, Aristotle University of Thessaloniki
- Prof. Ana Aguiar Ricardo, Chair of the Division of Green and Sustainable Chemistry, EuChemS
- Prof. Athanasios Papadopoulos, President of the Association of Greek Chemists

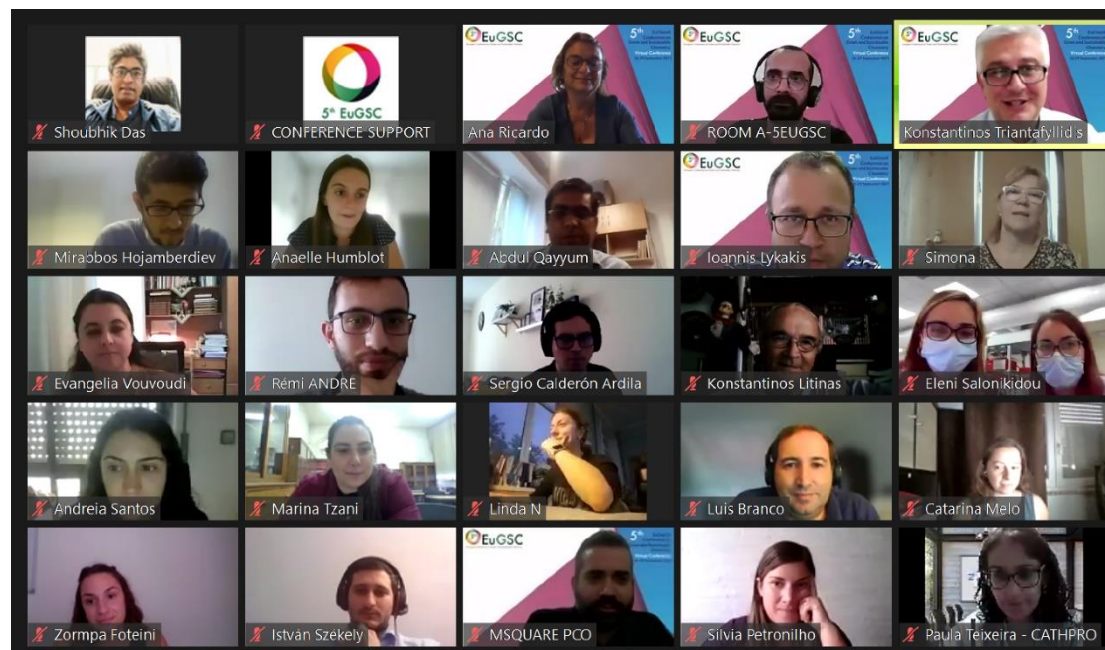
During the first day of the conference, Prof. Ana Aguiar Ricardo presented the:

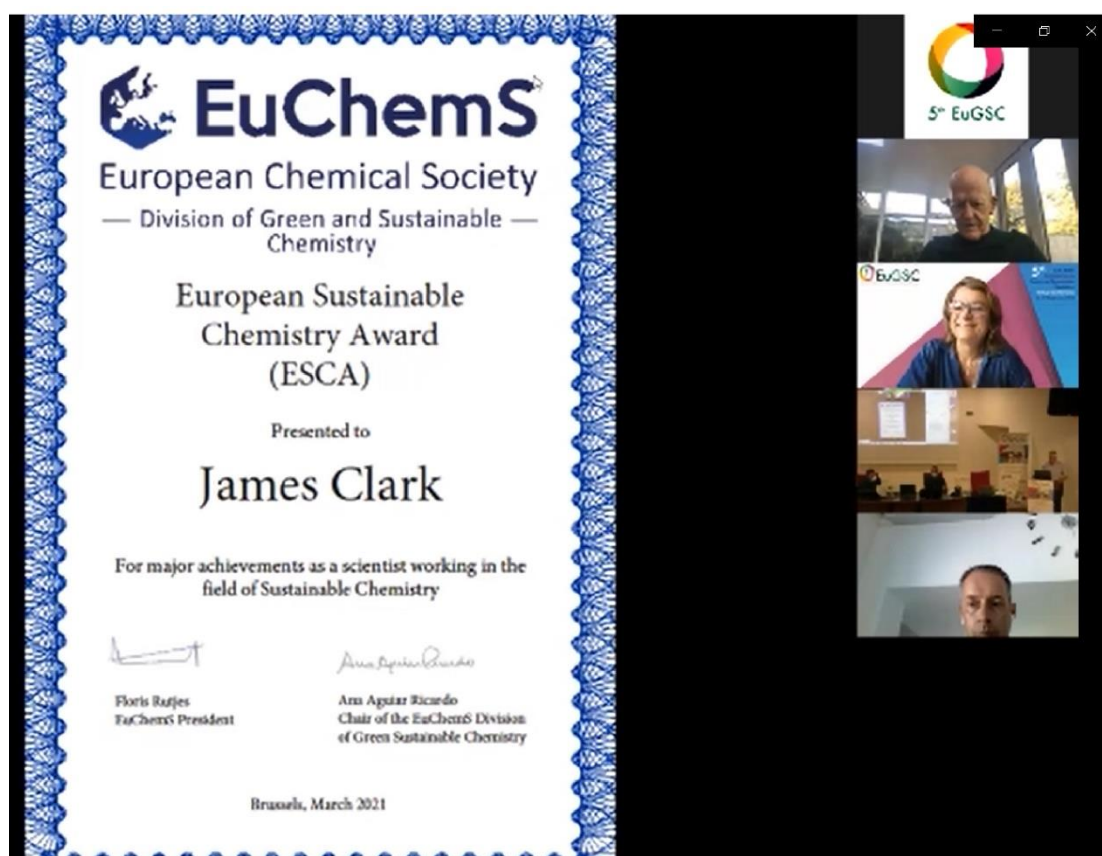
“2021 EuChemS Sustainable Chemistry Award (ESCA)” to Prof. James Clark,


who delivered an inspiring lecture with the title “Towards a Circular Bio-Economy using Green Chemistry”.

During the closing session, five “Best Poster Awards”, were presented to the winners, selected by the committee of three recognized colleagues in the field.


The Chair of the Conference, on behalf of the Organizing Committee, the DGSC/EuChemS and the AGC would like to thank all speakers, authors, session chairs and sponsors for their contribution towards a successful conference!







Green Chemistry
Centre of Excellence



UNIVERSITY
of York



5th EuGSC

Towards a *Circular Bio-Economy* using *Green Chemistry*

Professor James Clark
Green Chemistry Centre of Excellence (UK)

Greenchemistry.net
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www.york.ac.uk/greenchemistry

Research

Industry

Networking

Education





















5th EuGSC

Circular Chemistry

Designing the Circular Economy at Molecular Scale



INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

Prof. Javier García Martínez
IUPAC, President-elect

26/09/2021



INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY



Universitat d'Alacant
Universidad de Alicante



EuChemS
European Chemical Society
The Division of Pure and Applied Chemistry
of the Royal Society of Chemistry




5th EuGSC
European Conference on Green and Sustainable Chemistry



Luigi Vaccaro | CONFERENCE SUPPORT | Arjan Kleij | shoubhikdas | Matthias Beller | Ana Aguiar-Ricardo

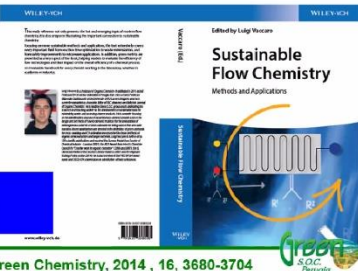
Flow chemistry and Green Chemistry

BIG ISSUE: take the Green Chemistry principles in flow

- DILUTION (larger amounts of organic solvents larger waste) 
- FLOW chemistry may allow to invent NOVEL PROCESSES
Let these processes be invented in safer reaction media, with appropriate heterogeneous catalysts, including recovery and reuse of materials used.
- BESIDES the "MASS PARAMETERS" that are correctly measured by green metrics, other "added values" of flow chemistry should be considered "novel metrics"

- Minimization of reaction time
- Optimization for time screening
- Waste minimization
- Safety improvement
- Process Intensification and easy scale up
- Energy and Cost Efficiency

Sustainable flow chemistry
Editor L. Vaccaro Wiley-VCH, 2017



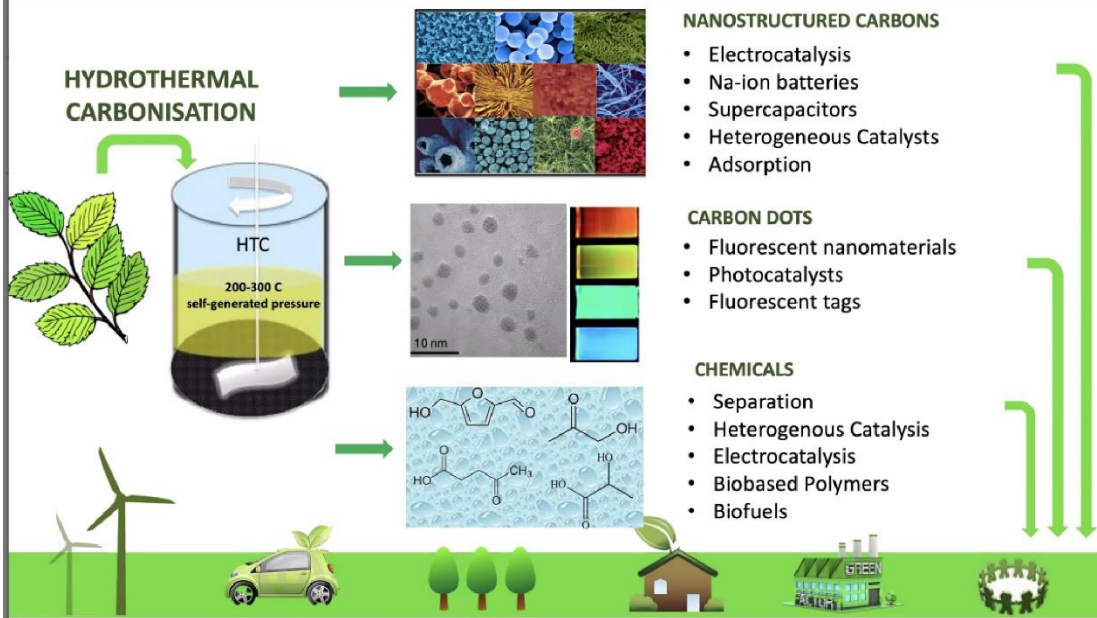
Flow approaches towards sustainability Vaccaro et al. Green Chemistry, 2014, 16, 3680-3704

ROOM C-5EUGSC | Nadav Amdursky | Titirici, Magda

Recording...

HYDROTHERMAL CARBONISATION

HTC
200-300 C
self-generated pressure



NANOSTRUCTURED CARBONS

- Electrocatalysis
- Na-ion batteries
- Supercapacitors
- Heterogeneous Catalysts
- Adsorption

CARBON DOTS

- Fluorescent nanomaterials
- Photocatalysts
- Fluorescent tags

CHEMICALS

- Separation
- Heterogenous Catalysis
- Electrocatalysis
- Biobased Polymers
- Biofuels

