



## Sam Thomas

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### ABOUT ME

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Research fellow for Project ENCAPSULATE at the Department of Industrial Chemistry, University of Bologna, Italy.

### WORK EXPERIENCE

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#### Research Fellow for Project "ENCAPSULATE"

*Department of Industrial Chemistry "Toso Montanari", University of Bologna* [ 8 Jan 2024 – Current ]

City: Bologna | Country: Italy | Website: <https://site.unibo.it/prin2022-encapsulate/en/project-details/>

- Optimization of the RCF process on second-generation lignocellulosic biomass (L-BIO) and its evolution towards a one-pot catalytic process for the complete valorization of lignin and holocellulosic fractions into high-value products.

#### Master Thesis Student

*Eni S.p.A. Renewable, New Energies and Material Science Research Center (DE-R&D)* [ 13 Mar 2023 – 12 Jul 2023 ]

City: Novara | Country: Italy

- Analytical works to support the development and optimisation of the Reductive Catalytic Fractionation - Aqueous Phase Reforming coupled biorefinery process at the pilot plants of Eni S.p.A., Novara, Italy.
- Investigation of different lignocellulosic biomass feedstocks for 'lignin-first' biorefinery process - Reductive Catalytic Fractionation (RCF). Qualitative and quantitative analyses on lignocellulosic biomass feedstocks and the post-reaction samples.

#### Project Case Study Intern

*University of Bologna* [ 14 Nov 2022 – 31 Jan 2023 ]

City: Bologna | Country: Italy

- Preparation and characterisation of Hydrogels based on PVA and conductive polymers, for energetic and sensor applications via Electrochemical impedance spectroscopy and ATR-FTIR spectroscopy.

#### Intern

*Laboratoire PRISM - Inserm U1192 - University of Lille* [ 31 Jan 2022 – 25 Feb 2022 ]

City: Lille | Country: France

Training on the use of MALDI-MSI instrument and interpretation of the spectral data.

### EDUCATION AND TRAINING

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#### Master Advanced Spectroscopy in Chemistry (ASC) - Erasmus Mundus Joint Master Programme

*University of Lille - Science and Technology (France) | University of Bologna (Italy)* [ 1 Sep 2021 – 20 Oct 2023 ]

Website: <https://master-asc.eu/> | Field(s) of study: Physical and Analytical chemistry ; Spectroscopy ; Sustainable Industrial chemistry | Final grade: Good | Level in EQF: EQF level 7 | Type of credits: ECTS | Number of credits: 120 | Thesis: Chemical characterisation of lignocellulosic biomass for the production of Hydrogen by RCF-APR combined approach

## Bachelor of Science in Chemistry

*Mahatma Gandhi University - St. Berchmans College (Autonomous)* [ 30 Jul 2017 – 30 Mar 2020 ]

City: Kerala | Country: India | Field(s) of study: Natural sciences, mathematics and statistics: ● Chemistry ● Physics  
● Mathematics | Final grade: CGPA: 8.79/10.0, Grade: A+ | Level in EQF: EQF level 6 | Type of credits: CBCS (India) |  
Number of credits: 120

## SAKURA Science Exchange Program 2019

*Sophia University | Japan Science and Technology Agency* [ 11 Oct 2019 – 20 Oct 2019 ]

City: Tokyo | Country: Japan

Participant in an international symposium on Sustainable Partnership held at Sophia University, Tokyo on 20<sup>th</sup> October, 2019.

## PUBLICATIONS

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[2023]

### Chemical Characterisation of Lignocellulosic Biomass for the Production of Hydrogen by RCF-APR Combined Approach

The thesis is kept under an embargo period of 3 years as per the partner agreements.

ASC Master Thesis | ENI S.p.A. - University of Bologna

[2018]

**Towards diffusion as a tool of AIDS diagnosis** Thomas, S., Hebbali, J., Sasikumar, H., Ghosh, S. (2018) *Towards diffusion as a tool of AIDS diagnosis*. Open Academic Research; An idealistic non-profit academic environment, 1<sup>st</sup> Edition: Kerala 2017. 1 (2): 55-61.

## HONOURS AND AWARDS

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[ 13 Oct 2023 ] University of Bologna

**ASC Study Award 2022-23** Grant dedicated for the master thesis work at Eni S.p.A., Novara, Italy.

[ 15 Apr 2021 ] I-SITE Foundation Lille Nord Europe

**"Science for a Changing Planet" MSc Fellowship**

St. Berchmans College (Autonomous)

**Academic Achievements - BSc Chemistry** Received 'Best Outgoing Student' award of 2019/2020, Merit award for 'Exceptional Achievement in B.Sc Degree Examination 2019' (second year of Bachelors) and Proficiency award of 2018/19.

[ 31 Dec 2017 ] Department of Higher Education, Government of India

**Central Sector Scholarships for College and University Students**

[ 26 Jun 2018 ] International Scholarship and Tuition Services, Inc. | Western Digital Company, USA

**Western Digital Scholarship – STEM 2018**

## CONFERENCES AND SEMINARS

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[ 13 Feb 2023 – 17 Feb 2023 ] University of Bologna, Italy

**"Spectroscopy at different length and time scales"- ASC Winter School 2023**

[ 20 Jun 2022 – 24 Jun 2022 ] Jagiellonian University, Kraków, Poland

**Characterization of Materials with Spectroscopic and Imaging Techniques - ASC Summer School 2022**

[ 6 Feb 2018 – 8 Feb 2018 ] Department of Chemistry, St Berchmans College (Autonomous)

**National Seminar on "Recent Trends in Materials Science and Technology"** Co-organised by Materials Research Society of India (MSRI) – Thiruvananthapuram Chapter.

## TANGIBLE SKILLS

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### Spectroscopy

FT-IR, <sup>1</sup>H NMR, <sup>13</sup>C CP/MAS & HPDec NMR, P-XRD and GC/MS.

## Others

CHNS organic elemental analysis and HPLC

## DIGITAL SKILLS

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Windows & Linux OS / Microsoft Office (Outlook, Excel, Word, PowerPoint)

### Scientific communication

LaTeX/ Overleaf / BioRender (Scientific illustrations) / Inkscape (Vector graphics)

## LANGUAGE SKILLS

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**Mother tongue(s):** Malayalam

**Other language(s):**

**English**

**LISTENING C2 READING C1 WRITING B2**

**SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## COURSES AND CERTIFICATIONS

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[ Oct 2021 – Dec 2021 ]

### Advanced NMR Spectroscopy

Online MOOC course by University of Lille and France Université Numérique.

[ Aug 2018 – Oct 2019 ]

### Lab Chemist - Incoming Raw Material Testing (RSC/Q0312)

Theoretical and practical sessions on rubber processing techniques by Rubber, Chemical and Petrochemical Skill Development Council, India.

[ Mar 2020 ]

### IELTS Test (Academic)

Overall CEFR Level: C1. Issued by the British Council.

[ Jan 2020 ]

### APTIS English language qualification

Overall CEFR Grade: C. Issued by the British Council.

## HOBBIES AND INTERESTS

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### Photography

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16 May 2024