

LABORATORY OF GEOLOGY OF LYON: EARTH, PLANETS, ENVIRONMENT – LGL-TPE



UNDERSTAND THE FORMATION OF THE EARTH, ITS EVOLUTION, THE APPEARANCE OF LIFE AND ITS DEVELOPMENT

<http://lgltp.ens-lyon.fr>



RESEARCH TOPICS

- EARTH AND PLANETS
- SURFACE AND LITHOSPHERE
- PALEONTOLOGY, PALEO ECOSYSTEMS, PALEOENVIRONMENTS, PALEOCLIMATES
- BIOSIGNATURES AND PRIMITIVE LIFE

CROSS-CUTTING THEMES

- INTERDISCIPLINARITY: AROUND EARTH SCIENCES (GEO-MEDICINE, GEOARCHAEOLOGY...)
- DATA MINING AND MACHINE LEARNING

RESEARCH EQUIPMENT AND TOOLS

Equipment:

- ICP-MS plasma source mass spectrometers and laser ablation, Neoma MC-ICP-MS/MS spectrometers (national instrument of INSU).¹⁻²
- Visible and UV Raman spectrometers, Raman imager (national instrument of INSU).¹⁻²
- Mass spectrometers coupled to liquid chromatographs, organic geochemistry².
- Drone platform

Resources:

- Geology collections and lithotheque for research and teaching (10 million samples)
- Professional training of teachers and technical Raman and ICPMS
- Map library, library

KEY FIGURES

154 staff including **70** researchers, **40** PhD students, **20** post-doctoral fellows and **24** research support staff

Over the last 5 years:

9 prizes and distinctions including **1** CNRS medal, **2** IUF, **1** Murchison Medal and **1** Nemmers Prize

901 publications

125 public funding including **107** national and **18** European and international (**6** ERC, Horizon 2020, **14** ANR including **5** coordinates by the lab)

3 private financing within ENS de Lyon

Intellectual property:

2 active patent families

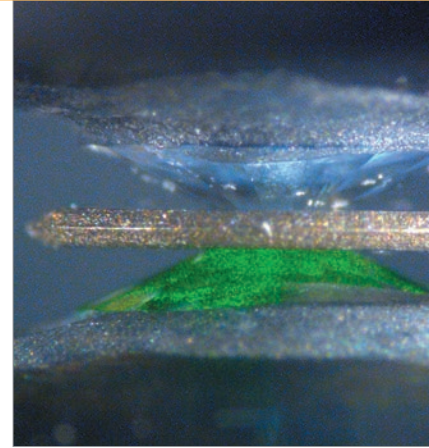
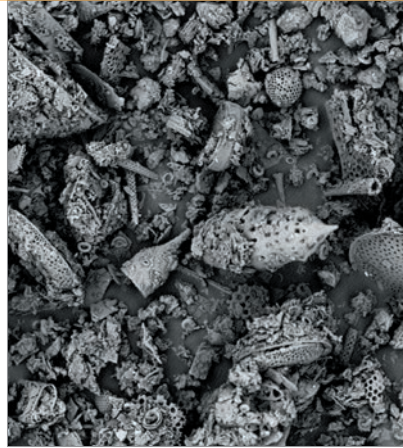
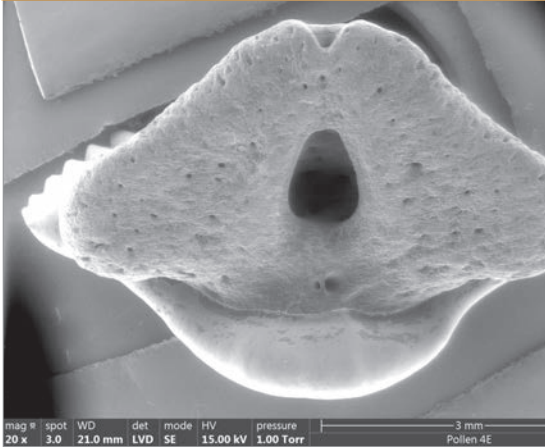
2 start-ups

TRL scale between **0** and **5**

1-platforms supported by INSU with privileged access to all researchers of this institute on unique instruments of their kind.

2-platforms that are part of the ReGEF research infrastructure

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FOCUS ON

FROM THE LABORATORY TO THE SOCIO-ECONOMIC WORLD

- Numerous national and international academic collaborations: Institut de Physique du Globe de Paris, Natural History Museum of Paris, Universities of Cambridge (United Kingdom), Rice (United States) and Yale (United States), Max Planck Institute (Germany), etc.
- Member of an international research group on E-geosciences: Earth Byte Group.
- Collaborations, services, European and national projects with industrialists: Nestlé, Total, CNES, Carbon Institute, CEA, HYDREKA - BU Environmental Expertise, etc

Institutional partnership research

- **Mars 2020 mission:** collaboration with CNRS, CNES, NASA and ESA following the landing on 18 February 2021 of the “Perseverance” rover with the French Supercam instrument on board.
- **MATISS:** collaboration with CNES and ESA. Implementation of a space experiment to test in microgravity new so-called intelligent surfaces that make possible to modulate biocontamination.
- **LabEx LIO:** this laboratory of excellence is interested in the question of the origins of matter, the large-scale properties of the universe, large cosmic structures, the Solar System, the Earth and the first forms of life.
- **Investigation and isotopic or molecular forensics.** Collaboration with the Radioanalysis, Chemistry and Environment Division of CEA/DAM to characterize the deposits and manufacturing processes at the origin of nuclear materials.

Private partnership research

- **Thanks to the Raman and ICPMS spectrometry platforms,** the LGL-TPE participates in research on industrial, societal and environmental applications. For example, new generation bio-inspired ceramics resistant to fracturing (hip prostheses), lubrication additives improving engine performance, as well as the development of isotopic biomarkers in oncology, diabetology, and neurodegenerative diseases.

CONTACT

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