



HAL
open science

A Thermo-Mechanical Platform available at the Laboratoire Léon Brillouin

Gaston Exil, Laurence Noirez

► **To cite this version:**

Gaston Exil, Laurence Noirez. A Thermo-Mechanical Platform available at the Laboratoire Léon Brillouin. 2nd Annual Meeting of the Austrian Society for Rheology,, Nov 2023, Linz (AUSTRIA), Austria. hal-04270241

HAL Id: hal-04270241

<https://hal.science/hal-04270241>

Submitted on 3 Nov 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



ÖSTERREICHISCHE
GESELLSCHAFT
FÜR RHEOLOGIE

Send this form to:
oeqr@boku.ac.at

**2nd Annual Meeting of the Austrian Society for Rheology,
November, 17th, 2023
JKU Linz**

ABSTRACT FORM

Yes: I agree that my abstract is provided to all conference participants in the abstract booklet X

No: I do not agree

Name: Gaston EXIL

email of presenter: gaston.exil@cea.fr

ABSTRACT: 300 words including title, authors and affiliation(s). Use character size 10 Pt. and paste in your text (*.doc) below.

A Thermo-Mechanical Platform available at the Laboratoire Léon Brillouin

G. Exil¹, L. Noirez¹

¹Laboratoire Léon Brillouin (CEA-CNRS), Université Paris-Saclay, CE-Saclay, 91191 Gif-sur-Yvette Cédex, France
Collaboration with U. Windberger, Center for Biomedical Research, Medical Uni. of Vienna, Vienna, Austria

Keywords: Improved dynamic measurements, data acquisition and visualization.

The Saclay group has shown a couple of years ago, that it is possible to improve the measurement of the dynamic signal using high energy surfaces that provide a better wetting [1]. A finite shear elasticity was measured at submillimeter scale in fluids so far considered as purely viscous. A new homemade software has been recently elaborated to improve the measurement of the synchronous reading and visualization of several independent setups (shear strain, stress and normal force sensors with variable resolution time with an option to couple a thermal mapping) [2]. This instrumental coupling has successfully shown that mesoscopic liquids exhibit a change of temperature upon mechanical shear stress [3]. Such study is particularly important for physiological fluids examined in the frame of a collaboration with Prof. U. Windberger [4].

TMAAnalysis is a dedicated real-time data acquisition and visualization system, combining camera and multimeters connected to the rheometer [4]. The programming language is Python, combined with EVOCORTEX's irDirectSDK programming API to drive microbolometers.

1. L. Noirez, Encyclopedia of Polymers and Composites © Springer-Verlag GmbH Germany, in Springer Nature 2020, S. Palsule (Editor).
2. G. Exil, « Acquisition interfacing for Experimental Research » in progress.
3. E. Kume and L. Noirez, J. Non-Equilib. Thermodyn., 47(2) (2022) 155–163. <https://doi.org/10.1515/jnet-2021-0091>.
4. U. Windberger, P. Baroni, and L. Noirez, J. Biomed. Mater. Res. 1(2022).