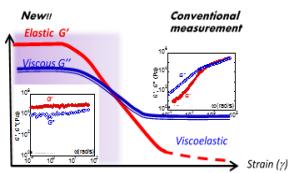


# PUBLICATIONS

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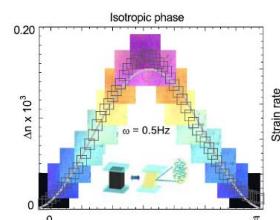
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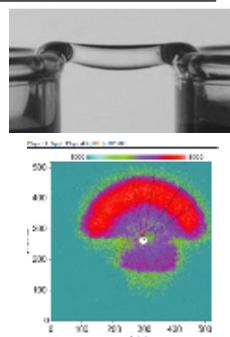
Low frequency birefringence in the liquid phase of liquid crystals

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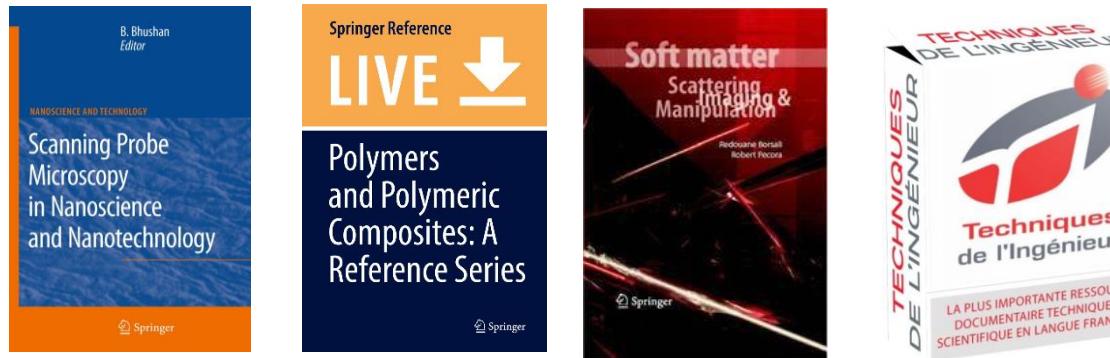
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of Solubilisate and Molecular Architecture on the Swollen Gel Structure", P. Malo de Molina, D. Kafouris, C. Patrickios, L. Noirez, & M. Gradzielski, Macromolecules sous presse 2023.

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165. The Effect of CO<sub>2</sub>/EO Head Groups on the Solubilization of Oils of Different Polarity in Aqueous Solutions of Nonionic Surfactants, Rahel M. N. Marschall, Vivian J. Spiering, Albert Prause, Jana Lutzki, Laurence Noirez, Sylvain Prevost, Michael Gradzielski, soumis.

## Book Chapters:



1. "Characterization of SCLC-Homopolymers and Blockcopolymers"

K. Vierler, A. Wewerka, L. Noirez, F. Stelzer\*, Chapitre 12 de "Ring Opening Metathesis Polymerisation and Related Chemistry, State of the Art and Visions for the New Century" E. Khosravi, T. Szymanska-Buzar (Eds) vol.56 NATO Science series, Kluwer Academic Publishers, 2002 ISBN: 978-1-4020-0559-6.

2. "Complex Melts under Extreme Conditions: from Liquid Crystal to Polymers. The Key-role of the Scattering methods for flow and pressure investigations." L. Noirez, Volume 3/4 "Neutron and X-Ray Scattering" du livre "Soft Matter: Scattering, Imaging and Manipulation", Soft-Matter Characterization, Borsali, Redouane; Pecora, Robert (Eds.) Kluwer Academic Publishers, 2008 ISBN: 978-1-4020-4465-6

3. "Dispositif innovant pour mesurer les propriétés viscoélastiques des matériaux", P. Baroni, L. Noirez, les Techniques de l'Ingénieur, Editions T.I. RE145-1 (2010).

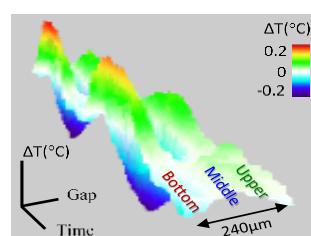
4. "Novel strategies to probe the fluid properties and revealing its hidden elasticity" L. Noirez, Chapitre 6 de "Applied Scanning Probe Method" Nanoscience & Technology", published par Springer-Verlag Berlin Heidelberg, B. Bhushan Editor, 2009 ISBN: 978-3-642-03534-0.

5. "Probing sub-millimeter dynamic to access static shear elasticity from polymer melts to molecular fluids" L. Noirez (2019), Encyclopedia of Polymers and Composites

© Springer-Verlag GmbH Germany, part of Springer Nature 2019  
Polymers and Polymeric Composites: A Reference Series, S. Palsule (Editor), DOI [10.1007/978-3-642-37179-0\\_54-2](https://doi.org/10.1007/978-3-642-37179-0_54-2)

Recent Highlights: on en parle à la Direction Fondamentale de la Recherche du CEA:

- **Highlight 1:** Communiqué du service de la Matière Condensée du 20/08/2021 sur la publication de E. Kume, P. Baroni et L. Noirez , "Strain-induced violation of temperature uniformity in mesoscale liquids" dans Sci Rep **10**, 13340 (2020):



[https://iramis.cea.fr/spec/Phocea/Vie\\_des\\_labos/Ast/ast.php?t=fait\\_marquant&id\\_ast=3259](https://iramis.cea.fr/spec/Phocea/Vie_des_labos/Ast/ast.php?t=fait_marquant&id_ast=3259)

- **Highlight 2:** Communiqué de la Direction Fondamentale de la Recherche (DRF):

**Observation expérimentale d'un effet thermoélastique dans l'état liquide:**

[https://www-lb.cea.fr/Phocea/Vie\\_des\\_labos/Ast/ast.php?t=fait\\_marquant&id\\_ast=3291](https://www-lb.cea.fr/Phocea/Vie_des_labos/Ast/ast.php?t=fait_marquant&id_ast=3291)

La thermoélasticité décrit la variation des propriétés élastiques d'un corps solide en fonction de sa température. Pour un fluide incompressible, les coefficients thermoélastiques, dilatation isobare et compressibilité isotherme, sont en pratique nuls. Pour être non nuls, il est nécessaire que des interactions à longue portée soient présentes, mais ceci est a priori exclu de par la définition même de l'état liquide. Une équipe du LLB vient cependant de mettre en évidence des propriétés thermoélastiques pour un liquide dans des conditions usuelles de pression. Ils observent qu'un liquide ordinaire présente une modulation de température sous l'application d'une contrainte mécanique de cisaillement à basse fréquence (~1 Hz) le liquide se divise en bandes thermiques chaudes et froides, de plusieurs dixièmes de microns de large et variant de manière synchrone avec la déformation. Ce couplage thermomécanique ainsi mis en évidence est une preuve que l'énergie de l'onde de cisaillement n'est pas dissipée par le liquide mais se propage à l'échelle mésoscopique.

- **Highlight 3:** Communiqué dans les "Brèves de l'Iramis": Mise en évidence d'une relaxation thermo-mécanique dans un liquide après cisaillement, E. Kume & L. Noirez, Brèves de l'Iramis n°307 (May 2021).

## De la découverte à l'Innovation : Brevets d'Invention:



Brevet 1 (CNRS) 2004 n°0502379 (PCT n°EP2006/06011).

Nouveau « DéTECTeur 2D haute résolution pour Rayonnement Neutrons » (Barotron) Inventeurs: Patrick Baroni - L. Noirez

Licence Exclusive achetée par MAATEL-Scientific Instrumentation (SA) ARINAX (représente 1% des brevets CEA)

Brevet 2 (CEA) 2005 n°0510988 (PCT).

Procédé & dispositif pour la détermination des propriétés dynamiques pour fluides ou solides déformables

Inventeurs : P. Baroni, H. Mendil, L. Noirez

Brevet 3 (CNRS) 2012 : DI 05815-01 FR12, extension PCT

« Nouveau Procédé et Dispositif de production du froid »

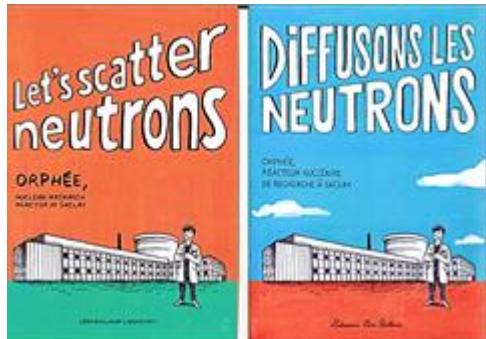
Inventeurs : P. Baroni, L. Noirez et P. Bouchet (LLB, IRFU)

Brevet 4 (CEA-CNRS) 2022: n° FR2206312.

« Procédé et dispositif de détermination d'une pression d'un liquide en écoulement dans un canal». Inventeurs : P. Baroni & L. Noirez

Dépôt d'un brevet d'invention déposé le 24-06-2022, sous le n° FR2206312, Rapport de Recherche validé en Mars 2023, PCT validé en Juin 2023

## Scientific Comics



Participation à l'élaboration de la première bande dessinée « Diffuser les neutrons » en 2018 et version anglaise « Let's scatter neutrons » en 2019, pour illustrer le quotidien des chercheurs et techniciens autour du Grand Instrument Orphée du LLB – conception : A. Bordenave (dessinatrice) et I. Mirebeau (LLB).  
(<https://fr.calameo.com/read/005680666c17f80b4dda1>).