

GDR-NAME Winter Newsletter

january, 2023



N A M E

GDR Nanomaterials for Energy Applications

GDR

Nanomaterials for Energy Applications

EDITO

Dear GDR Members

First let us wish you and your families a happy and peaceful new year. 2023 will be rich concerning scientific activities around materials for energy like the thematic schools EL'Nano (12-16/06), or scientific meeting organized by our GDR as the "Interfaces Day" (10-11/07) or our annual Plenary meeting (end of November), gathering the community around physics, engineering and chemistry problems. The GDR-NAME continues this year to participate and to promote scientific events of relative communities as the C'NANO (15-17/3), the International Workshop Thermoelectric Materials (12-14/4), or the workshop OXYDE+ (14-15/3). We are willing to inform you as well for international conferences of high importance for the community as Phononics, Phonons, Frontiers of Nanomechanical Systems (FNS), PIERS, META2023 etc.

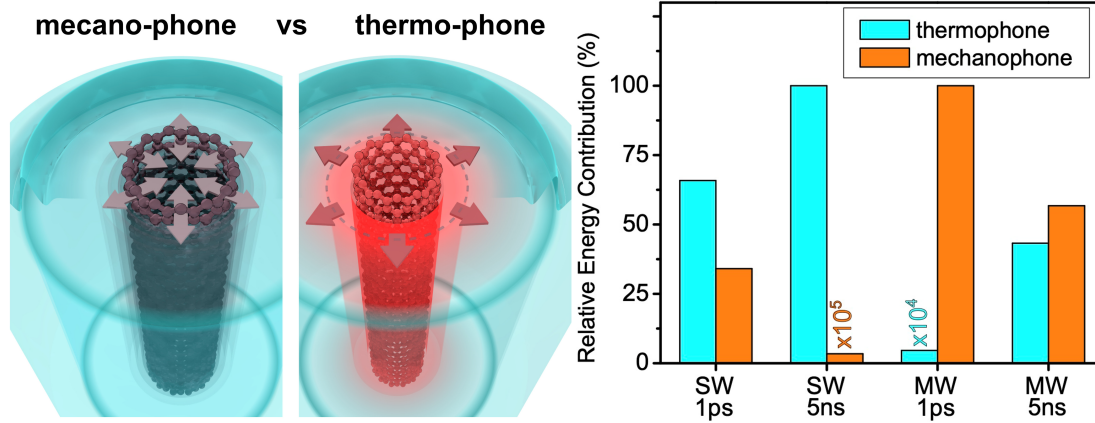
In this NL, you will find also two important calls; one related to the 2022 Thesis Prices and the second to the call for collaborative project between GDR groups. Please check the details and the conditions of the two calls in the letter.

Finally, we invite you all, to propose or to participate actively in an eventual webinaire or workshop, to send to us your new images/results to add to our website, to send us your publications/highlights to add them to our next NLs, or any other suggestions that could increase the interactions between the members of the GDR-NAME. For any of these actions, please send an email directly to "gdr-name" <gdr-name@services.cnrs.fr>



[LINK](#)

Scientific highlights

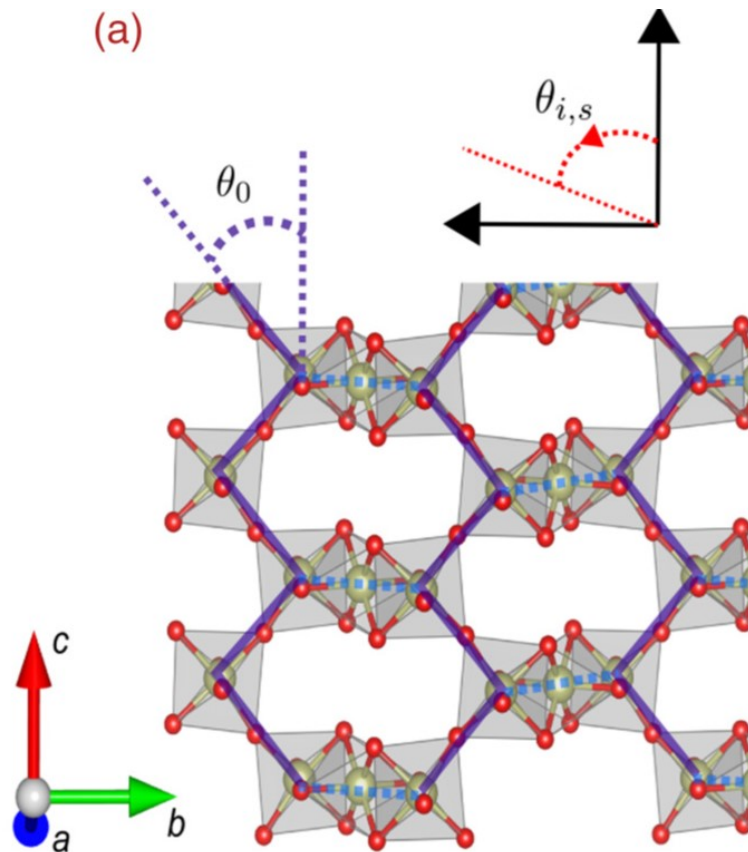


Nanoscale heat transfer plays a major role in photoacoustics !

Nanoscale heat transfer plays a major role in determining the photoacoustics response at the nanoscale. Here we show how the thermal problem drives generation of ultra high frequency acoustic waves in water, a key topic in nano resolution sensing, acoustic imaging and theranostics. We show that water immersed carbon nanotubes (CNTs) may act as an ideal optoacoustic source. The generation mechanism of acoustic waves in water, upon excitation of both a single-wall (SW) and a multi-wall (MW) CNT with laser pulses of temporal width ranging from 5 ns down to ps, is theoretically investigated via a multiscale approach. Depending on the combination of CNT size and laser pulse duration, the CNT can act as a thermophone or a mechanophone. As a thermophone, the CNT acts as a nanoheater for the surrounding water, which, upon thermal expansion, launches the pressure wave. As a mechanophone, the CNT acts as a nanopiston, its thermal expansion directly triggering the pressure wave in water. Activation of the mechanophone effect is sought to trigger few nanometers wavelength sound waves in water, matching the CNT acoustic frequencies. This is at variance with respect to the commonly addressed case of water-immersed single metallic nano-objects excited with ns laser pulses, where only the thermophone effect significantly contributes.

Ultrafast nano generation of acoustic waves in water via a single carbon nanotube, M. Diego, M. Gandolfi, A. Casto, F.M. Bellussi, F. Vialla, A. Crut, S. Roddaro, M. Fasano, F. Vallée, N. Del Fatti, P. Maioli, F. Banfi, Photoacoustics 28 (2022) 100407

[LINK](#)



Spinon matters for heat transport !

Low dimensional cuprates, such as SrCuO₂, exhibit highly anisotropic thermal conduction properties along the CuO spin-chains direction, where magnetic excitations (spinons) contribute to the heat transport process. In this article the mechanisms that govern the magnetic heat conduction have been probed, and in particular spinon defects scattering, through the introduction of minute amounts of nonmagnetic dopants on the copper site. Inelastic neutron scattering experiments show the systematic opening of spin pseudogaps in the magnetic excitation spectra, directly related to the collapse of the magnetic heat conduction, in the doped materials. Potential application in thermoelectricity of these materials are foreseen.

*Spinons and damped phonons in the spin-1/2 quantum liquid Ba₄Ir₃₀O₁₀ observed by Raman scattering. A. Sokolik, S. Hakani, S. Roy, N. Pellatz, H. Zhao, G. Cao, I. Kimchi, and D. Reznik, Phys. Rev. B **106**, 075108 (2022)*

[LINK](#)

GDR-NAME NEWS

Two important calls





Call for the 2023 thesis prize

(for a thesis defended between 01/01/2022 and 28/2/2023)

Thesis subject included in one of the following themes: collection/recovery, conversion/recycling, energy management or storage. Selection criteria :Thesis concerning the development of a technique or an instrument dedicated to the characterization and/or the elaboration of materials for energy, Thesis dedicated to the study of a new physical phenomenon of transport at the nanometric scale and which can be exploited in the longer term in applications related to the themes mentioned above. Application file:

- 1-Thesis manuscript
- 2-Report of the thesis jury,
- 3-Selections of Articles
- 4-Curriculum vitae
- 5-Complete list of publications

Application deadline: March 31, 2023 file to be sent to gdr-name-request@services.cnrs.fr
see GDR website for more details

Interlaboratory projects, deadline the 01/03/23

The purpose of this call for the laboratory members of the GDR is to finance two or three scientific exchanges between members. A budget of 1000 € to 1500 € will be granted to participate in a student or researcher exchange either to initiate a collaboration or to support already existing on-going partnership.

Breaking news of the GDR

Next plenary session of the GDR NAME in RENNES !!

The next plenary session days of the GDR NAME will be organized in RENNES by Fabien Grasset and Stéphane Cordier among others. Please, book the dates now : **8 to 10 of november 2023**. They will be held in Campus de Beaulieu PNRB building.
<https://www.univ-rennes.fr/linnovation-numerique>



GDR-NAME related Events

The EL NANO thematic school o nanomaterials elaboration of the GDR



NAME Monday June 12 to Friday June 16 at the Paul-Langevin Center in Aussois (73500)

The EL NANO thematic school (Elaboration of NANOMaterials for the recovery, conversion, transport and storage of energy) of the GDR NAME will be held from Monday June 12 to Friday June 16 at the Paul-Langevin Center in Aussois (73500).

On the program, a big question: what are the keys to designing a device for energy from its manufacture? The following aspects will be addressed in particular: physical and chemical syntheses (PVD, PLD, MBE, CVD, ALD), solid and liquid syntheses (microwaves, SPS, precipitation, CSD), discussions on the shaping and properties of nanostructures (piezoelectricity, pyroelectricity, thermoelectricity, photovoltaics, fuel cells). Save the date! **Registrations open soon**. Please note that accommodation will be possible from Sunday 11 June.

ANNOUNCEMENTS



C'Nano 2023: The Nanoscience Meeting, 15-17th of march, Poitiers, France

For the fifth year, the French national competency Cluster in Nanoscience of CNRS, C'Nano, organizes its interdisciplinary meeting in nanoscience "C'Nano 2023: The Nanoscience Meeting". This national event aims at gathering the scientific communities in nanoscience and nanotechnology, and will take place in Nouvelle Aquitaine region (France) in Poitiers from March 15th to 17th, 2023.

1-Nanomechanics: surface/ interface, composite nanomaterials, hybrid nanomaterials 2-Nanoscale heat transfer - Measurement

3-2D Materials

4-Nanomaterials for Energy

5-Functional thin Films & Nanostructures: growth & properties

[LINK](#)



Virtual Workshop on functional oxyde, OXYDE+ 14-15 mars 2023

We are pleased to announce the OXYDE+ workshop on functional oxides, organized by the OXYFUN GDR, and aimed at updating recent advances on functional oxide research among the french community. This workshop follows the workshop EPIDOX organized in 2021.

More information on the website : <https://oxydeplus.sciencesconf.org/> and on the enclosed flyer.

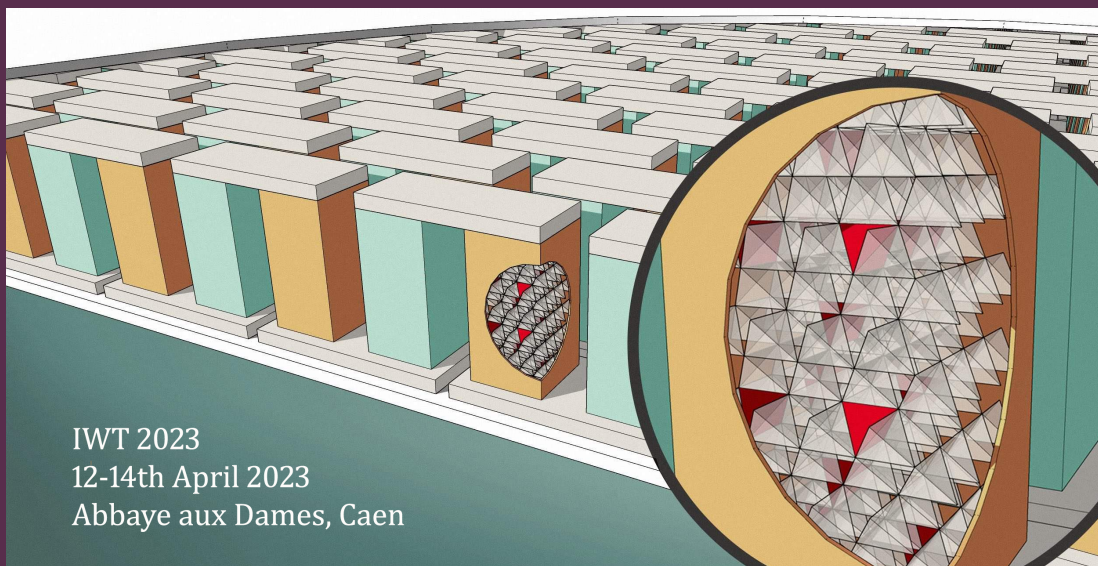
This virtual workshop will be held from 14 to 15 march 2023 (4 half days to be followed by zoom visioconferences). Links will be sent to registered people by e-mail after registration.

Important dates :

Abstract submission deadline : february 6th, 2023

Registration deadline (free of charge) : march 8th, 2023

[LINK](#)



IWT 2023
12-14th April 2023
Abbaye aux Dames, Caen

Internation Workshop on Thermoelectricity CAEN 12-14th of April 2023

Thermoelectricity is a historically important scientific subject both in Japan and in France, encompassing research fields from fundamental theory and computational modeling to material optimization, chemistry and physics, device engineering and large-scale application developments. The International Workshop Thermoelectric Materials: from materials chemistry and physics to devices (IWT2023) will allow researchers from both countries and from other European and Asian countries to discuss and share their findings after two years of travel restrictions. The workshop will take place at the Normandy Regional Council (Abbaye aux Dames, Caen).

This event is co-organized by CRISMAT, ISCR, and LINK (Tsukuba, Japon) and AIST (Japon).

[LINK](#)



Phononics

2023

6th INTERNATIONAL CONFERENCE ON PHONONIC CRYSTALS/METAMATERIALS/
METASURFACES, PHONON TRANSPORT, AND TOPOLOGICAL PHONONICS

June 12 - 16, 2023 – Manchester, England

Phononics 2023, june Manchester, England

After a pause in 2021 due to the COVID-19 pandemic, we are pleased to announce the return of the Phononics conference series. Phononics 2023 is scheduled to take place in Manchester, England, 12-16 June, 2022. Please find attached the conference flyer with information on submission and early-registration deadlines. Please address any inquiries to the conference chair, Professor Will Parnell (William.J.Parnell@manchester.ac.uk).

Please visit the website : <https://acoustics.ac.uk/phononics-2023-6th-international-conference-on-phononic-crystals-metamaterials-phonon-transport-topological-phononics/>

LINK

**Dicton du mois : à la mi-janvier, on regarde
enfin la neige tomber...**



A greek recipe, to make macaron even if it is not christmas !

Melomakarona, the most popular Greek Christmas Cookie! Juicy aromatic cookies with a hint of cinnamon and orange drenched in a honey syrup and topped crushed walnuts. Get the authentic step by step recipe for this juicy, decadent and delicious Greek Christmas honey cookie.



[Link](#)

You have received this email because you have subscribed to the GDR mailing list.
Don't forget to submit your announcements, proposals for highlights, image of the month, information of all types... Thank you!



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