INTERDISCIPLINARY RESEARCH INSTITUTE OF GRENOBLE

Scientific Newsletter

AUTUMN 2020

At the front page of IRIG

Novel « Safer-by-Design » biocides based on silver nanoparticle assemblies

This concept of nanomaterials consists of an assembly of silver nanoparticles linked together by a bio-inspired molecule. This nanomaterial with biocidal properties releases Ag ions in a slow and controlled manner.

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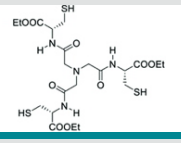

I. Michaud-Soret & A. Deniaud
CBM
Nanoscale Horizons, 2020

A prion-related protein senses warm temperature in plants

Temperature controls plant growth and development, and climate change has already changed the phenology of plants. What are the mechanisms by which plants perceive temperature?

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Chloe Zubieta
LPCV

Nature, 2020

Molecular basis of human infection with avian flu

We are unveiling the molecular mechanisms that allow the bird flu virus to adapt to humans. This study will make it possible to study the mechanism of inter-species contagion of viruses and thus open up potential new therapeutic paths.

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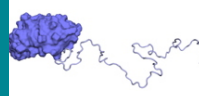

Martin Blackledge
IBS

Nature Communications, 2020

Photochromic dyes: New players in photovoltaics

This new family of photochromic dyes adapted to photovoltaic technology paves the way for photovoltaic glass whose transparency adapts to light, an interesting application in the building or automotive sectors.

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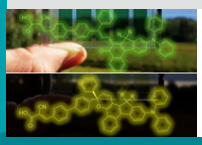

Renaud Demadrille
Symmes

Nature Energy, 2020

Fine-tuning nanowire crystalline interfaces for future photonic devices

How to create an interface between two crystals without generating dislocations when their mesh parameters can differ by several percent - new possibilities in integrated optoelectronics and photonics on silicon.

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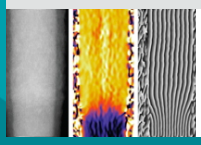

Moïra Hocevar
Pheliqs

Physical Reviews Materials, 2020

LiteBIRD: Space cryogenics to probe the origins of the universe

This new "SubKelvin" cooler has been selected to equip the two instruments of the LiteBIRD satellite. A new paramagnetic material has been developed for this project.

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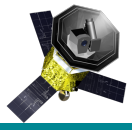

J.-M. Duval & T. Prouvé
DSBT
C. Marin - Pheliqs
Cryogenics, 2020 & J. of Low Temp. Physics, 2020

Investigation of a nano-architectured composite anode

Using new silicon-based materials to replace graphite in the anode of lithium-ion batteries improves their long-term mechanical and cyclic stability. An aging model at the nanometric scale is proposed.

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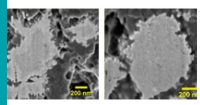

P.-H. Jouneau - MEM
S. Lyonnard - Symmes

Small, 2020

A microRNA predictive of adrenal cortical carcinoma recurrence

For the first time, a microRNA dosed post-operatively within 3 months of surgery is a powerful biomarker for the prognosis of adrenocortical carcinoma. And this by a simple blood analysis.

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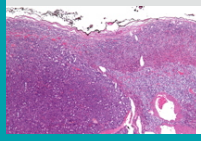

Nadia Cherradi
BCI

Cancers, 2020

Ménage à trois to control cell development

Revealing a tripartite protein complex enabling the regulation of the MYC protein (product of the c-Myc oncogene over-expressed in more than 70% of human cancers) through the control of its level of degradation.

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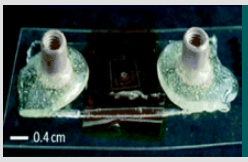
Emmanuel Taillebourg
BGE

Frontiers in Cell and Dev. Biol., 2020

Other scientific news of the IRIG laboratories



A microfluidic device for both on-chip dialysis protein crystallization and *in situ* X-ray diffraction

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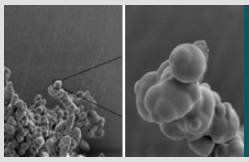

Following protein aggregation in real time by neutron spectroscopy

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How a bacterium manages to go unnoticed and increase its virulence

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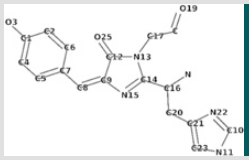

Fluorescent proteins dance in the dark

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Structural basis for the catalytic activities of the multifunctional enzyme quinolinate synthase

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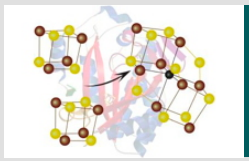

Structural insights into the mechanism of the radical SAM carbide synthase NifB, a key nitrogenase cofactor maturating enzyme

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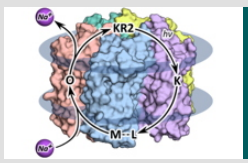

Molecular mechanism of light-driven sodium pumping

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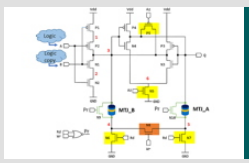

Spin transfer torque magnetic tunnel junction for single event effects mitigation in IC design

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Metamagnetism of weakly coupled antiferromagnetic topological insulators

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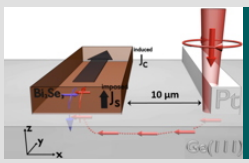

Spin-orbitronics at a topological insulator-semiconductor interface

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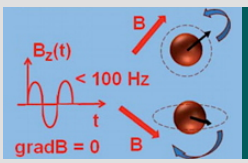

Cancer treatment by magneto-mechanical effect of particles - Review

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A promising molecule against antibiotic-resistant bacteria

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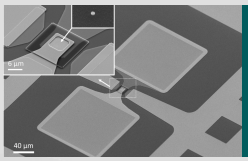

Optical access of magnetic tunnel junctions for future hybrid spintronic–photonic memory circuits

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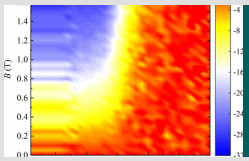

Very large Dzyaloshinskii-Moriya interaction and skyrmions in 2D Janus dichalcogenides

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Press releases - Prizes

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The European network SpintronicFactory releases its roadmap for spintronics

The SpinTronic Factory

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Bernard Dieny receives an ERC-Proof of Concept for his MAGALIGN project

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Mihai Miron receives an ERC Proof of Concept grant for his SOFT project

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