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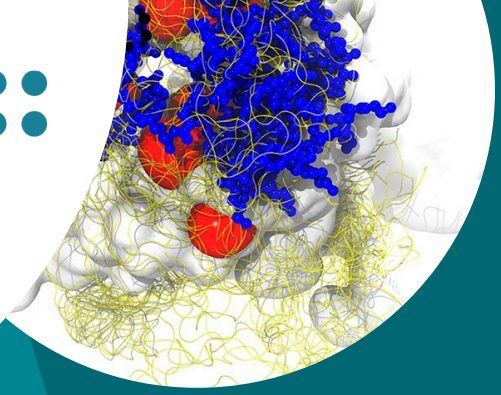

Scientific Newsletter

SPRING 2021

At the front page of IRIG

A direct way to transform CO_2 into methane with renewable electricity

This new nickel and iron-based catalyst is directly inspired by the active site of metalloenzymes involving these same metals in CO_2 metabolism. It transforms this gas into methane by multi-electronic electrochemistry.

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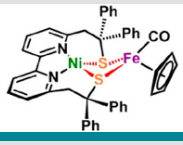

Vincent Artero - LCBM
Carole Duboc - DCM

ACS Energy Letter, 2020

Optimizing oil production by microalgae by taking inspiration from a Drosophila enzyme

In mutants of the photosynthetic eukaryotic *M. gaditana*, excess saturated and monounsaturated fatty acids have been redirected to triacylglycerol, suggesting strategies to improve the oil content of this microalgae.

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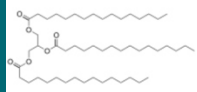

Éric Maréchal
LPCV

Plant Physiology, 2021

Kidney cancer: Two targets for one therapy

By chemogenomic screening, a combination of inhibitors targeting two protein kinases has been identified as a new target candidate for the treatment of kidney cancer.

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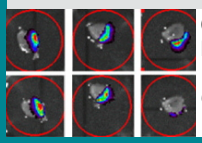

Odile Filhol-Cochet
Biosanté

Cancers (Basel), 2021

Promiscuity without excess for the "client-chaperonne" couple

Deciphering the specific mechanism of a chaperone system present in the intermembrane space of the mitochondria illustrates how chaperones adjust the balance between promiscuity and specificity with their "client".

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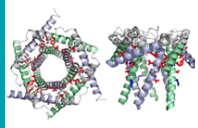

Paul Schanda
IBS

Science Advances, 2020

Cryo-CMOS for quantum research

Creation of a quantum integrated circuit that demonstrates the possibility of integrating conventional electronic devices and elements with quantum dots on a CMOS chip.

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Louis Jansen
Pheliqs

Applied Physics Review, 2020

Cellulose nanofibrils: Wood as a vector for green chemistry

Dynamic nuclear polarization has made it possible to study the surface of functionalized cellulose nanofibrils and to obtain information on their surface chemistry, from the starting material to its functionalization, and this without isotopic labelling.

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Gaël De Paëpe
MEM

Chemical Science, 2020

Towards biocompatible, DNA-functionalized and environmentally friendly quantum dots

Development of quantum dots functionalized with DNA. Based on $AgInS_2$/ZnS, they are biocompatible and able to emit in the infrared for bio-imaging applications.

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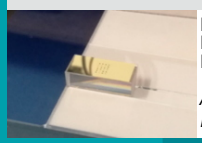

K. Kheng - Pheliqs
D. Gasparutto, Y. Hou-Broutin, P. Reiss - SyMMES

ACS Applied Materials & Interfaces, 2020

Twist the spin

Development of a measurement device to evaluate the spin absorption in a ferromagnetic material, thus allowing access to fundamental parameters of spin transport, which are not well known experimentally.

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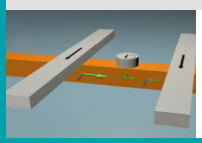

Laurent Vila
Spintec

Physical Review Letters, 2021

Exploration of elementary particles: One step beyond, one step more stable

Simcryogenics is a library of components allowing the simulation of large cryogenic installations (such as the LINAC SPIRAL 2 at GANIL) from the compression station to the cryodistribution through the helium refrigerator.

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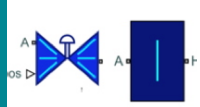
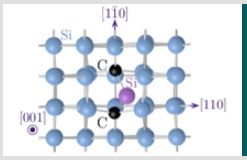


P. Bonnay - DSBT
P.-E. Bernaudin - Irfu

IOP Conf. Ser.: Mater. Sci. Eng., 2020

Other scientific news of the IRIG laboratories



An artificial atom in silicon emitting single photons at telecom wavelength

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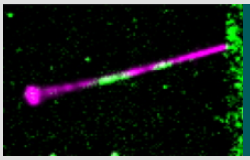

Molecular motors and microtubule self-repair

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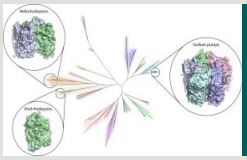

Structural and functional investigations of novel microbial rhodopsins

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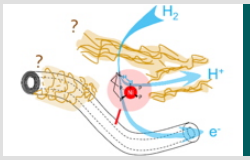

Ionomer structuration on the performance of bio-inspired noble-metal-free fuel cell anodes

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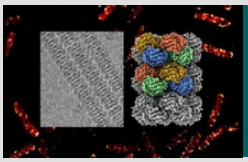

Supramolecular assembly of the *Escherichia coli* LdcI upon acid stress

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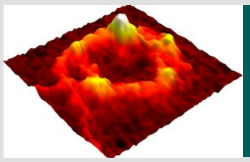

The HU protein of *Deinococcus radiodurans* imaged by AFM

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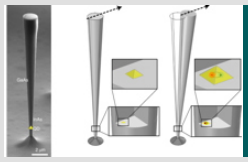

Quantum: An artificial atom sets a micro-wire in motion

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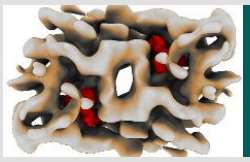

Towards the mechanism of action of the mitochondrial Complex I assembly complex

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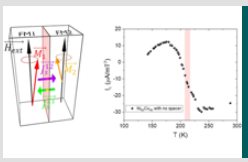

Independence of the inverse spin Hall effect with the magnetic phase in thin NiCu films

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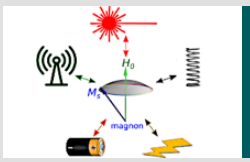

Review – Spin insulatronics

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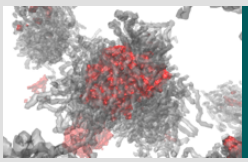

Pas de deux: How polymers keep dry proteins active

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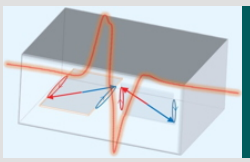

Spin-information transported over long-distances at room temperature in the ultra-low damping hematite antiferromagnet

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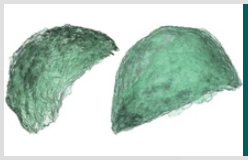

Let there be green!

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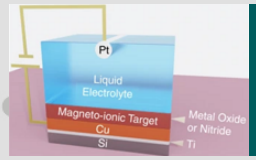

Controlling magnetism with voltage is shown to be more efficient using nitrogen magneto-ionics

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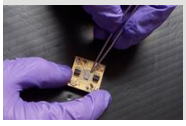
The genesis of quantum silicon: From industry to research!



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17 avenue des Martyrs
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