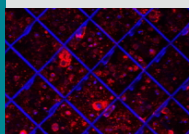


## At the front page of IRIG

### In vitro platform mimics the tumor microenvironment of pancreatic cancer

Design of a 3D microenvironment where cells form a tissue similar to a pancreatic mini-tumor using a biomimetic film that mimics the biophysical conditions of the tumor microenvironment.

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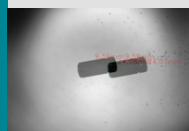
**Catherine Picart**  
Biosanté

*ACS Applied Materials & Interfaces*, 2022

### Cryogenic pellets to mitigate ITER plasma disruptions

The ITER fusion plasma can be subject to very strong instabilities, which can damage the tokamak. A test bench has been designed and built to produce and project cryogenic ice cubes at 1 km/s to mitigate these effects.

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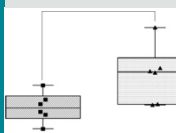


**François Millet**  
D-SBT

### A polysaccharide acts as a molecular gag of the pro-tumor endosulfatase HSulf-2

The removal of a polysaccharide from the surface of a protein with pro-tumor activity removes the "molecular gag" effect that was exerted on it, which in turn promotes tumor growth and metastasis.

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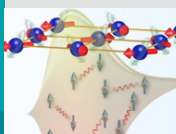
**Romain Vivès - IBS & Odile Filhol-Cochet - Biosanté**

*Cell Reports*, 2022

### A new iron key for high temperature superconductivity

An experiment reveals that spin fluctuations in an iron-based superconductor have a preferred direction, suggesting a mechanism for superconductivity in these materials.

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**Frédéric Bourdarot**  
MEM

*Physical Review Letters*, 2022

### Microstructure of MAPbI<sub>3</sub> halogenated perovskite thin films for photovoltaics

The different results obtained by this study constitute an important step of clarification and understanding in the perspective of the control of the microstructure of perovskite layers used in photovoltaic.

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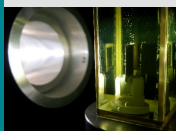


**Stéphanie Pouget - MEM & Peter Reiss - Symmes**  
*Advanced Energy Materials*, 2022

### Imitate Nature to produce solar hydrogen

An artificial leaf based on a photovoltaic core and capable of converting solar energy into hydrogen has been developed. This monolithic device is capable, when immersed in a neutral salty environment, of converting solar energy into hydrogen with an efficiency of 2%.

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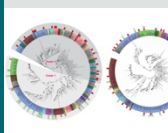
**Vincent Artero**  
CBM

*ACS Applied Materials & Interfaces*, 2019

### Better predicting Fe-S enzyme activity in a non-native prokaryotic host organism

Systematic study of the elements that make iron-sulfur (Fe-S) proteins inactive outside their native host species. These proteins build the Fe-S clusters essential for many metabolic and regulatory processes.

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**Sandrine Ollagnier de Choudens**  
LCBM

*eLife*, 2022

### First GeSn laser at room temperature

First room temperature lasing achieved with GeSn due to higher tin concentration and better heat dissipation provided by a tailored pedestal architecture under the GeSn microdisk. A fundamental result for a fully integrated group IV semiconductor laser on Si.

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**Vincent Calvo & Nicolas Pauc - Pheliqs**

*Applied Physics Letters*, 2022

### Magnetic Fe<sub>5</sub>GeTe<sub>2</sub> thin films near room temperature

The synthesis of centimetric thin films of Fe<sub>5</sub>GeTe<sub>2</sub>, a new magnetic material with unexpected physical behavior, and their stabilization at room temperature of their magnetic properties has been made possible.


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**Frédéric Bonell**  
Spintec

*npj 2D Materials and Applications*, 2022

## Other scientific news of the IRIG laboratories

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## Press releases - Prizes - Other Highlights

Nicolas Daveau - 1<sup>st</sup> prize in the Arcane Graphical Abstract 2022 contest



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QuantAlps: A Grenoble-based research federation for quantum science and technology



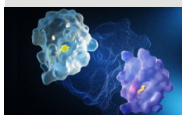
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A biomaterial-based electronic nose with potential for early diagnosis



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Visualization of the "breathing movements" of protein structures



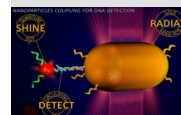
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François Parcy - CNRS silver medal 2022



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VIDEO - 1<sup>st</sup> prize in the Arcane Graphical Abstract 2022 contest obtained by Nicolas Daveau



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