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2022



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Cu₂Se

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Cu₂Se

Cu₂Se

Cu₂Se

Cu₂Se-BiCuSeO-

ZT

2.82

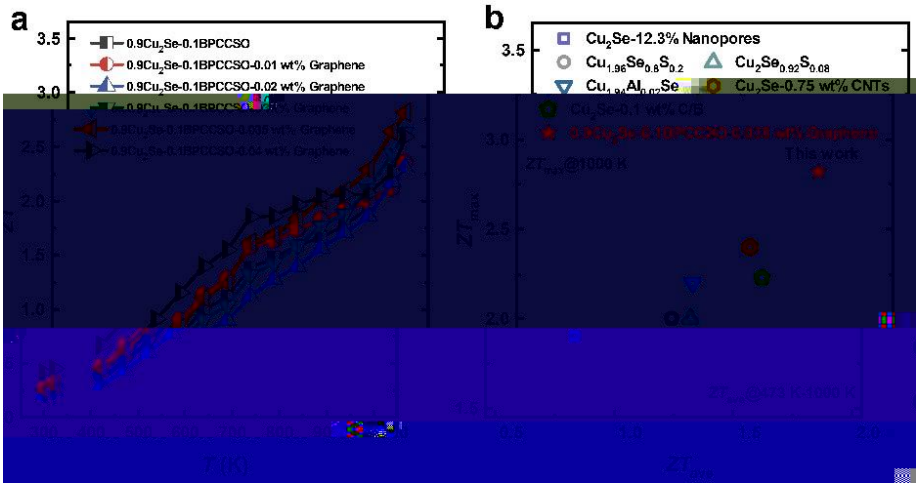
1000 K

473 K-1000 K

ZT

1.73

1



1.

2

BiCuSeO

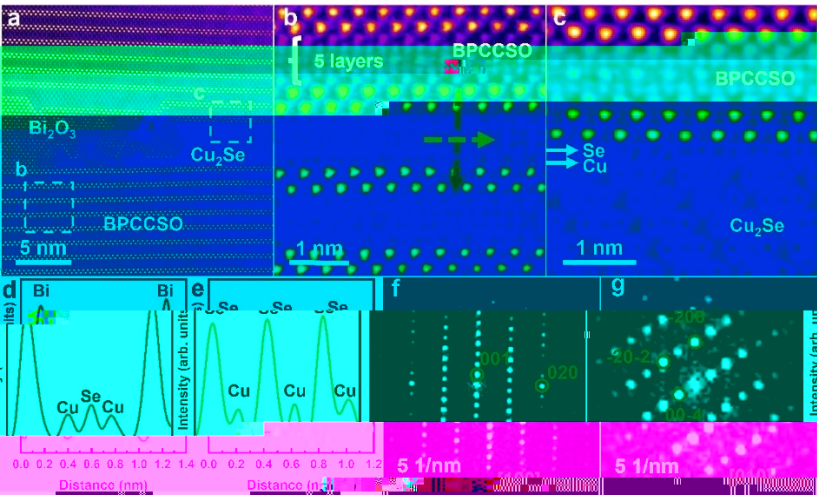
Cu₂Se

BiCuSeO

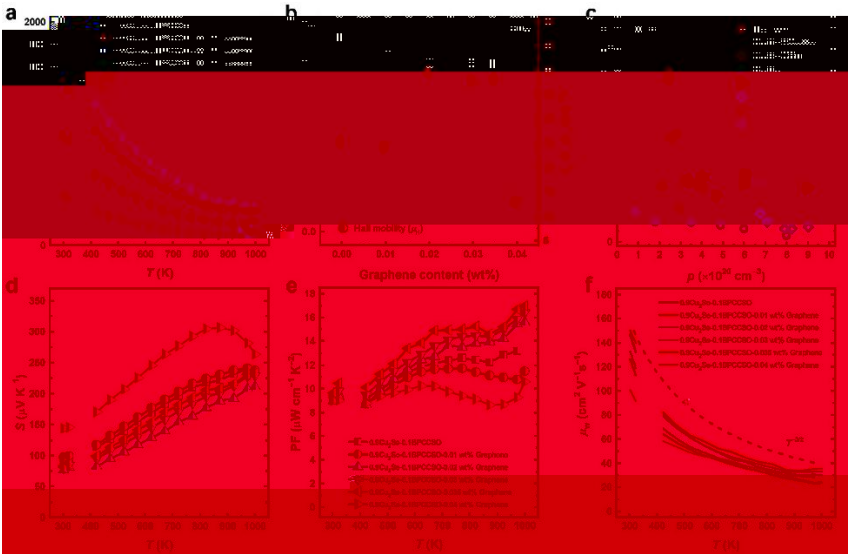
Cu-Se

Cu

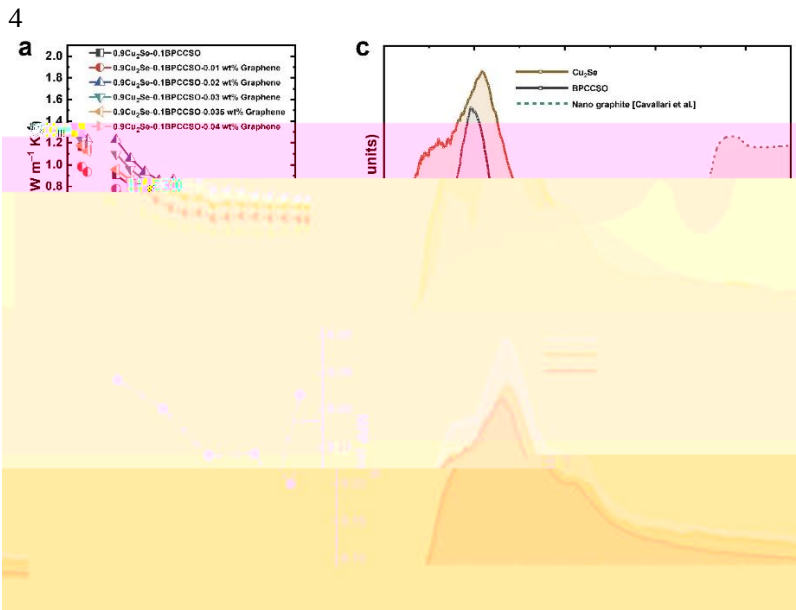
Cu₂Se



2.



3.



4.

“ Cu₂Se ” Compositing effects for high thermoelectric performance of Cu₂Se-based materials
Nature Communications

ANSTO Dehong Yu

/

Mg₃ Sb₂Bi₂

Mg

Mg₃ Sb₂Bi₂

Mg Bi

Bi

Mg

1. Bi

Bi

Mg

n Mg₃ Sb₂Bi₂

ZT

1.82

T=473K

11.3%

2.

Mg₃ Sb₂Bi₂

“ $\text{Mg}_3(\text{Sb,Bi})_2$ Bi
Performance in $\text{Mg}_3(\text{Sb,Bi})_2$ -Based Thermoelectric Materials
Advanced Materials
2019

” Bi-Deficiency Leading to High-

Miyazaki

Kei Hayashi

Yuzuru

0.5mA/cm²

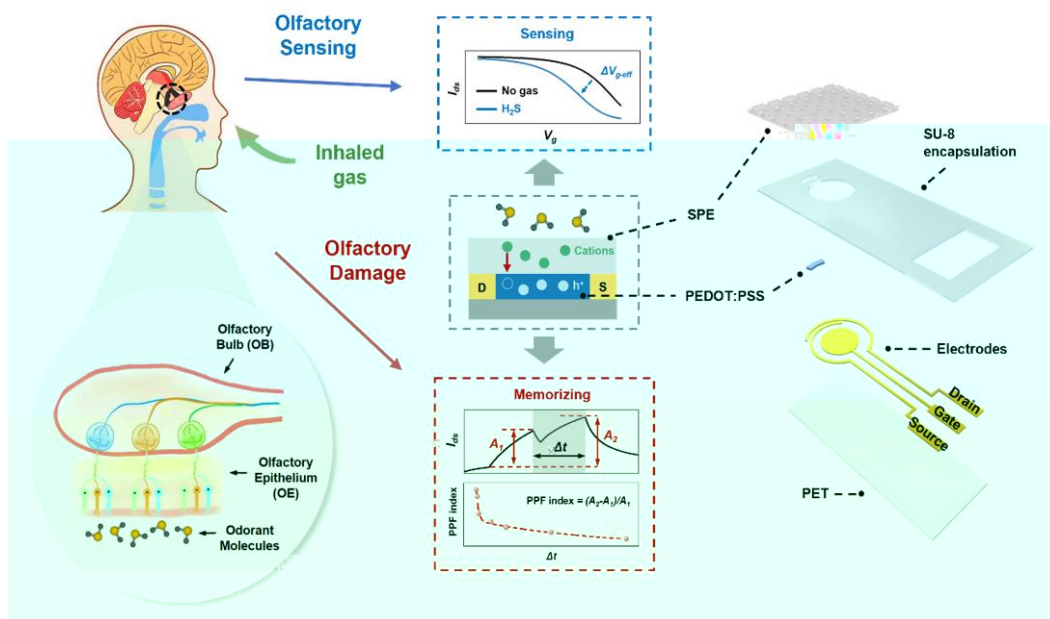
Figure 3 consists of two panels, (a) and (b), showing the long-term stability of the P-Li||LLZTO||P-Li battery. Panel (a) displays the battery's performance at room temperature, while panel (b) displays it at 40 °C. Both panels show the voltage (V) versus time (h) for a current density of 0.3 mA cm⁻². The main plots show the battery's performance over 400 hours, with a 'Short Circuit' event indicated at approximately 80 hours. The insets show a zoomed-in view of the cycling performance, highlighting the voltage fluctuations during the short circuit event. The battery's performance is shown for two different electrolyte configurations: P-Li||LLZTO||P-Li (top) and N-Li||LLZTO||N-Li (bottom).

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2018

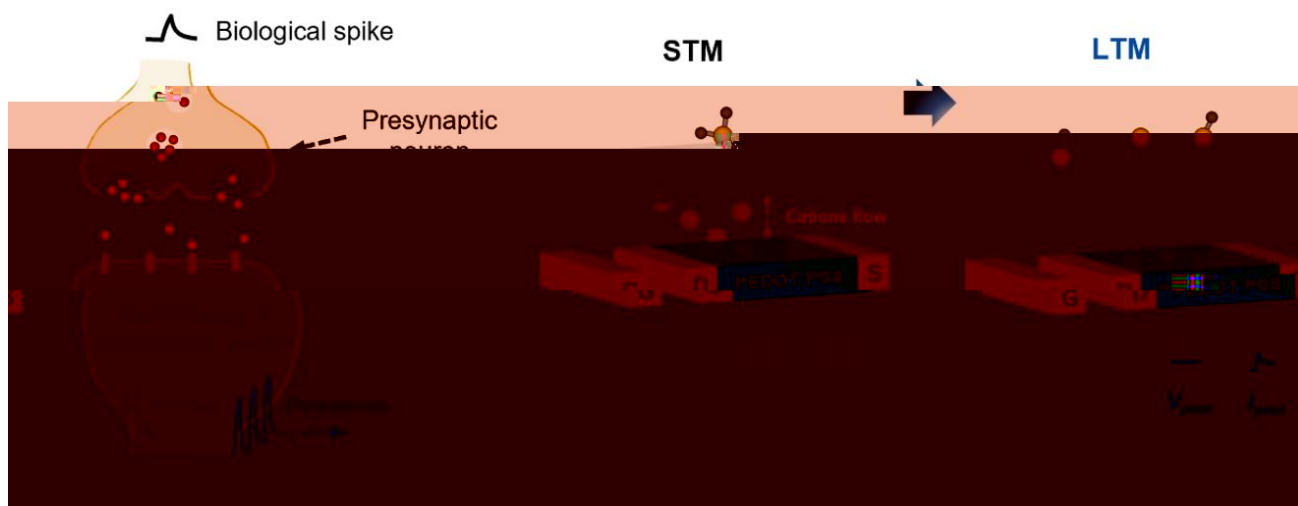
<https://doi.org/10.1002/anie.202305099>

	H ₂ S
H ₂ S	(ppb)



1

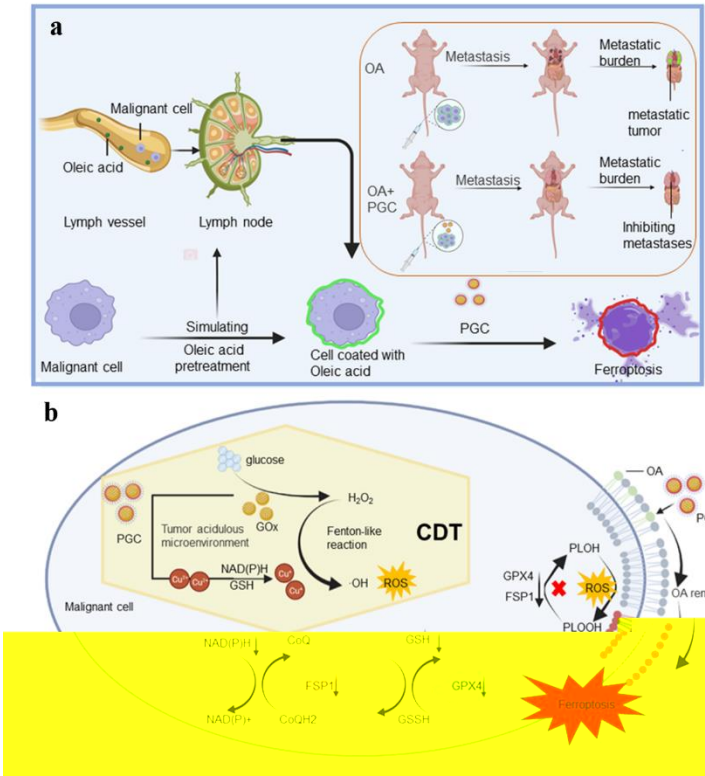
STM IPSC PPD H₂S
 STM to LTM STM



2

Olfactory Synapse with Gasotransmitter-Mediated Plasticity A Flexible and Biomimetic
 Materials Advanced Functional

PGC (PEG-modified GOx-CuCaP)



1 PGC

GPX4(Glutathione Peroxidase 4)
PGC

FSP1(ferroptosis suppressor protein 1)
PGC

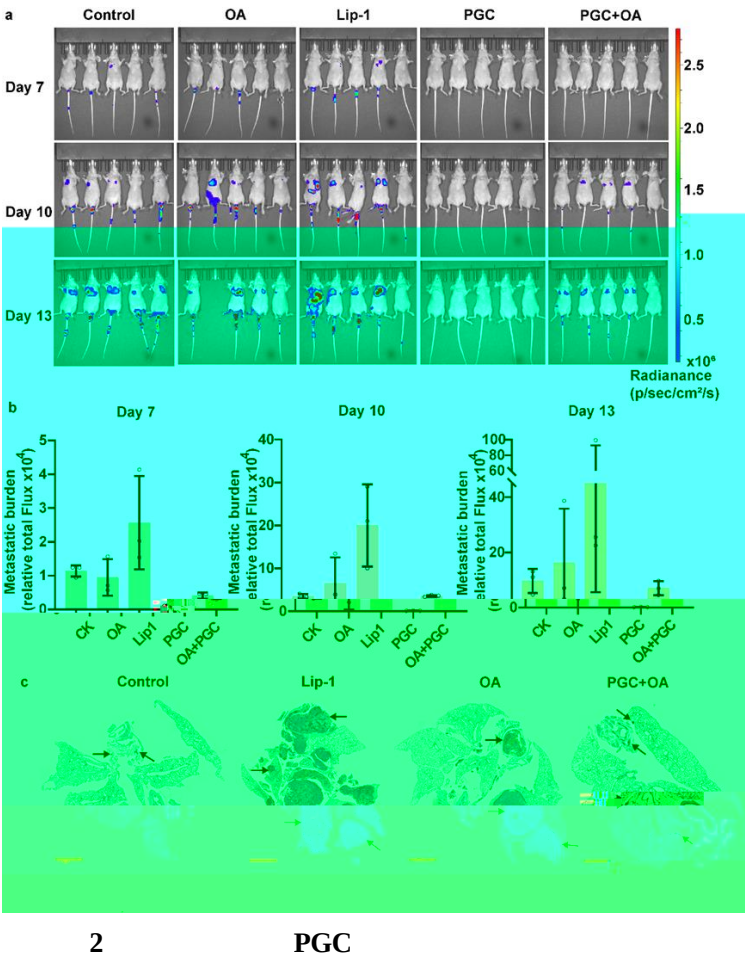
PGC

GPX4 FSP1

PGC

GPX4 FSP1

PGC



a)

b)

c) H&E
applied materials today

SERS

Au Ag

2D

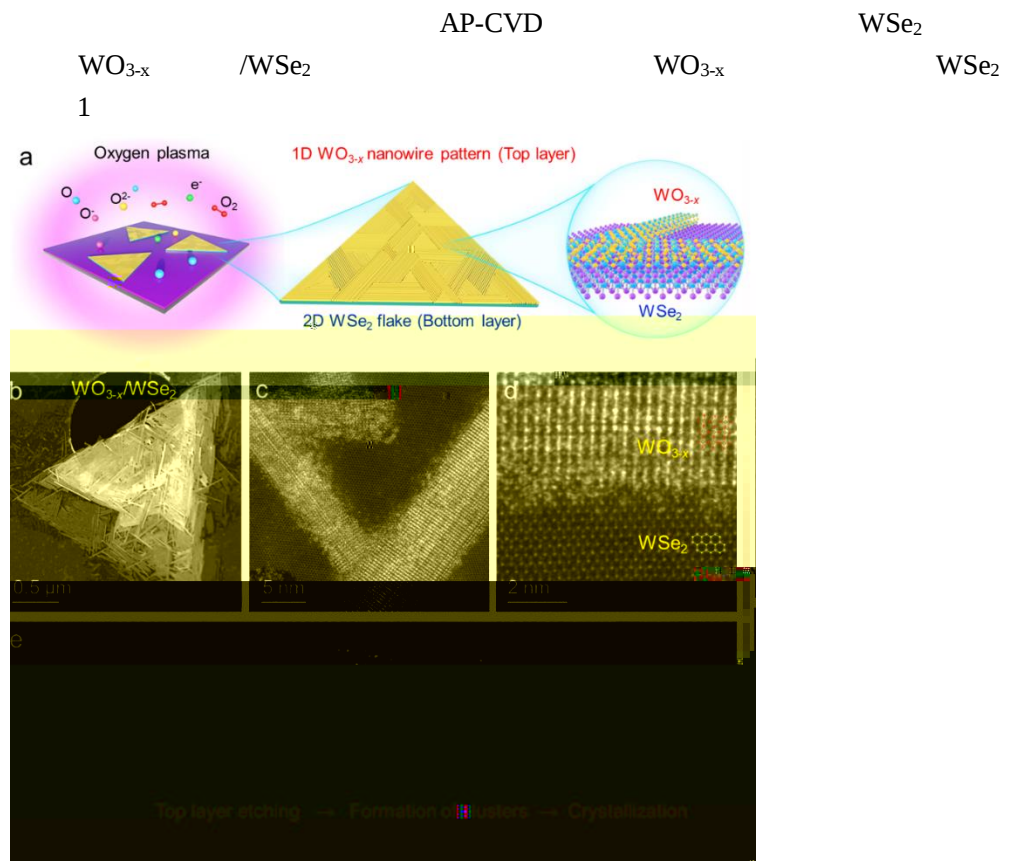
TMDCs

2D

10⁻⁹-10⁻¹⁵M

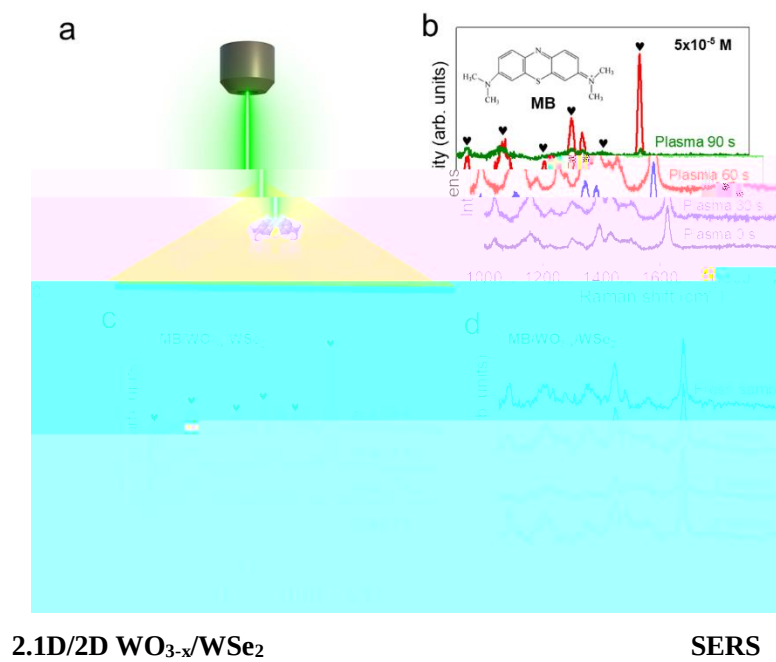
SERS

SERS



1. $\text{WO}_{3-x}/\text{WSe}_2$ 2. WSe_2 WO_{3-x}

SERS 60s



2.1D/2D $\text{WO}_{3-x}/\text{WSe}_2$

3

$\text{WO}_{3-x}/\text{WSe}_2$

4

WSe_2

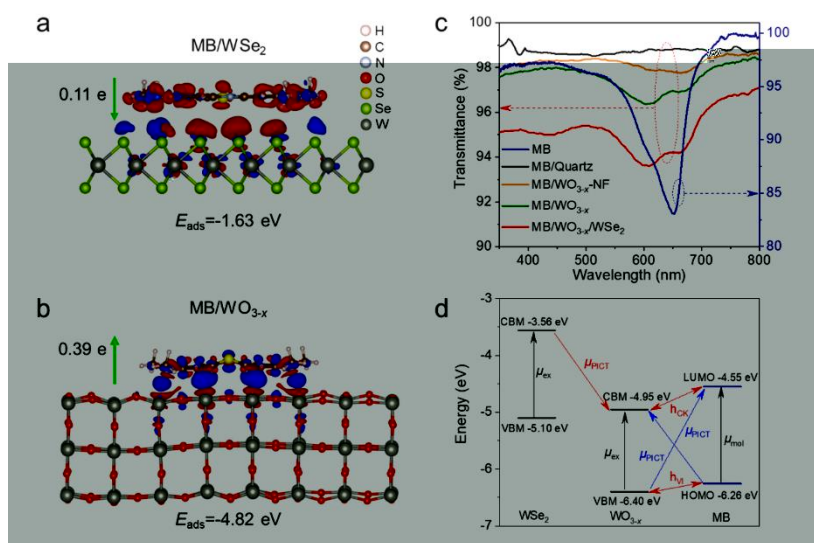
WO_{3-x}

WO_{3-x}/WSe₂

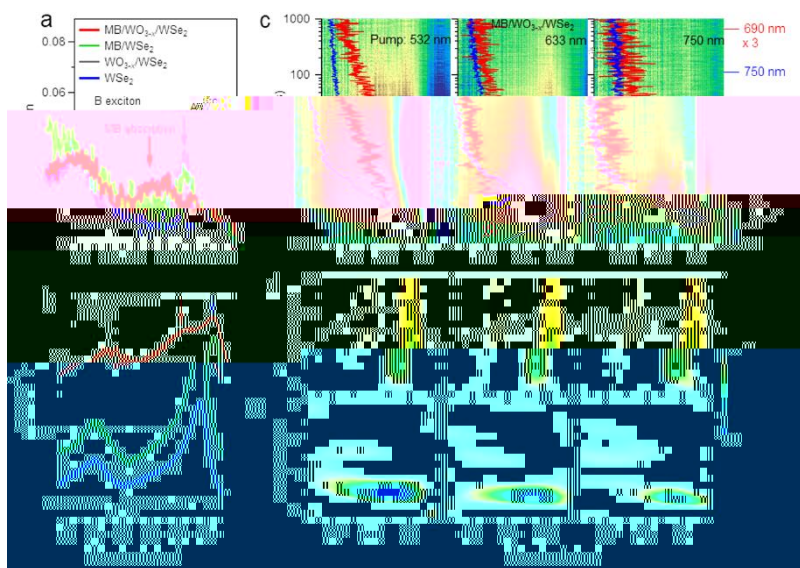
~690nm

WO_{3-x}

1.0



3.1D/2D WO_{3-x}/WSe₂



4.1D/2D WO_{3-x}/WSe₂

MB

5

11

“

WO_{3-x}

/WSe₂

” Ultrafast

charge transfer in mixed dimensional WO_{3-x} nanowire/WSe₂ heterostructures for atomolar-level molecular sensing

Nature Communications

2022

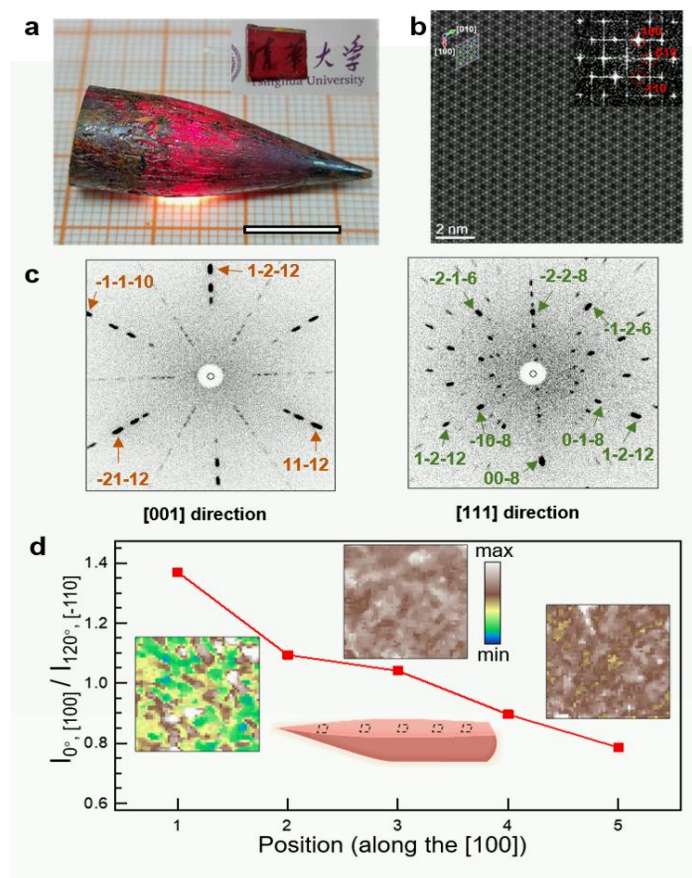
2018

2021

2020

<https://www.nature.com/articles/s41467-023-38198-x>

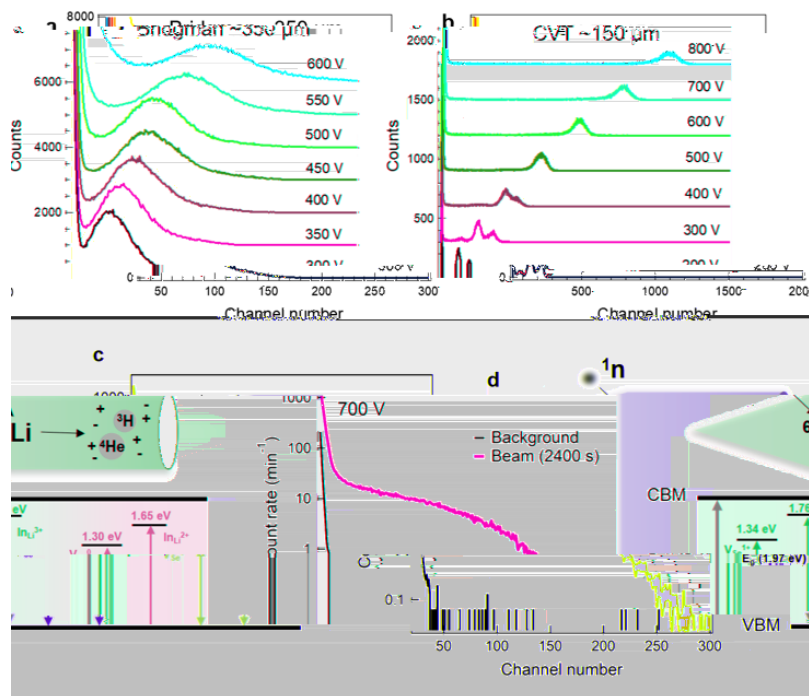
		^3He ^{10}B ^6Li	
		^3He	
^3He	^3He alternative detectors	^6Li ^{10}B	
	$^{10}\text{B}/^6\text{Li}$		
			100%
	Li/B		/
2020			$\text{LiInP}_2\text{Se}_6$
$\text{LiInP}_2\text{Se}_6$			CVT
	$\text{LiInP}_2\text{Se}_6$		



1.Bridgman

$\text{LiInP}_2\text{Se}_6$

$\text{LiInP}_2\text{Se}_6$ Bridgman
 Bridgman
 12mm
 Bridgman
 Bridgman
 1a
 1b 1c 1d
 SHG
 Bridgman
 Bridgman
 2c
 CVT Bridgman
 alpha
 2a b CVT
 V_{Se}^0 $\text{In}_{\text{Li}}^{2+}$
 Bridgman
 $\text{LiInP}_2\text{Se}_6$
 $\text{LiInP}_2\text{Se}_6$



2. $\text{LiInP}_2\text{Se}_6$

$\text{LiInP}_2\text{Se}_6$
 $\text{LiInP}_2\text{Se}_6$ bulk single crystals

Robust thermal neutron detection by
Advanced Materials

2020

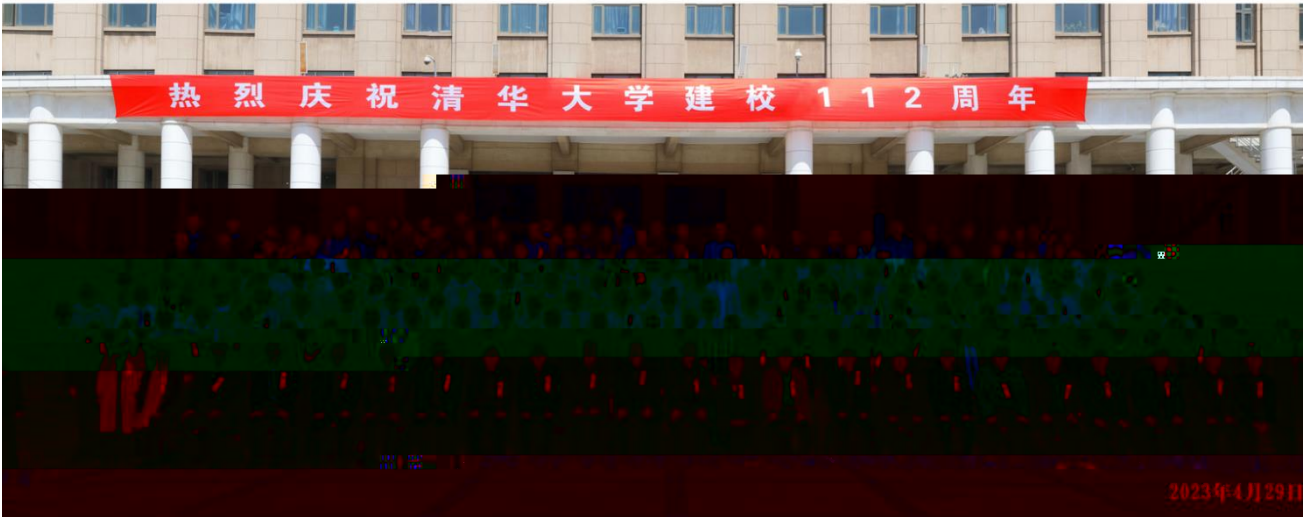
2020

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清华大学材料学院成立10周年暨清华大学材料系成立35周年合影留念
School of Materials Science and Engineering, Tsinghua University



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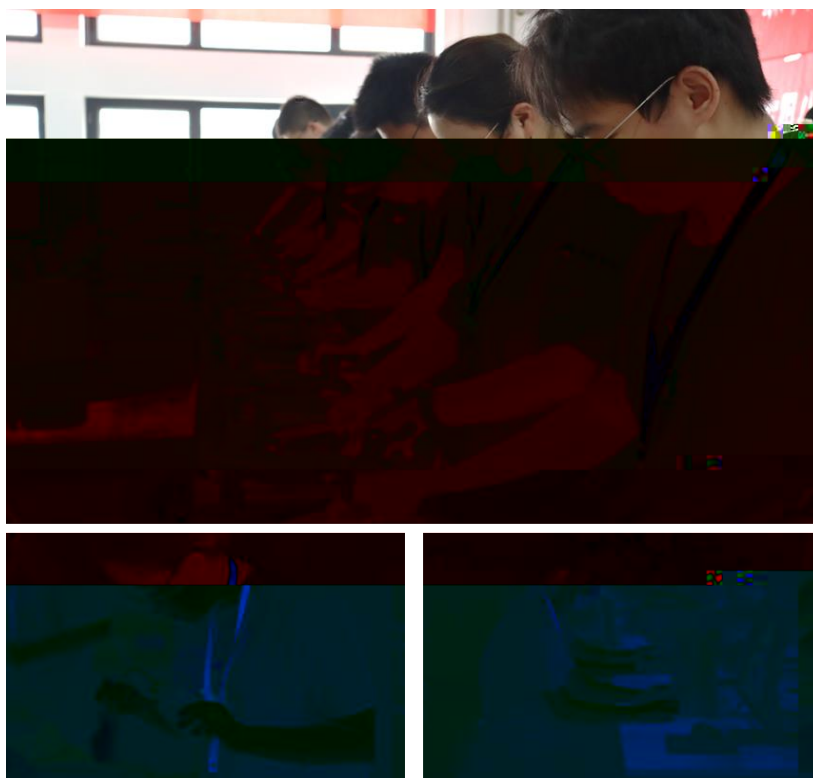
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2023北京市第一届暨清华大学第四届虚拟仿真创意设计大赛



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Nature

Nature Nanotechnology)

Chemical Society Reviews

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Journal of Materials Science and Engineering

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