# Laser-induced graphene capacitors

What is laser induced graphene (Lig)?
In this context, we demonstrate a versatile, cost-effective and efficient method for fabricating graphene supercapacitor electrodes using Laser Induced Graphene (LIG). A CO 2 laser beam instantly transforms the irradiated polyethersulfone polymer (PES) into a highly porous carbon structure.

Can laser induced graphene be used to fabricate supercapacitor electrodes?
Abstract: To ensure maximum comfort for the wearer, electronic components that include energy harvesters need to be mechanically conformable. In this context, we demonstrate a versatile, cost-effective and efficient method for fabricating graphene supercapacitor electrodes using Laser Induced Graphene (LIG).

Are laser induced graphene based capacitors a good choice?
Among all capacitor technologies,laser-induced graphene (LIG)-based capacitors are within the spotlight nowadays due to their high flexibility and simple manufacture. The most downside with LIG-based capacitors is their low conductivity and low charge capacity.

Which metal is used in laser induced graphene (Lig)?
Silver(Ag),copper (Cu),titanium (Ti),and tellurium (Te) are introduced into the porous laser-induced graphene (LIG) as dopants and nanoparticles. Compared to Ti and Te,Ag and Cu exhibit high incorporation efficiency.

Does modified graphene improve supercapacitor performance?
Modified graphene exhibits enhanced supercapacitor performance,attributed to heightened EDLC performance,aligning with the increased total density of states in the LIG-HfO 2 system,as illustrated in Fig. 6 b. 56.

What affects the CV curve of graphene electrochemical supercapacitors?
The properties of the electrode surface and the graphene shapesignificantly influence the CV curve. The concentration and types of oxygen functional groups have a notable impact on the capacitive performance of graphene electrochemical supercapacitors.

5 ???· This study explores the fabrication of nickel-oxide-embedded laser-induced graphene and its application in high-performance supercapacitors. Supercapacitors are critical for ...

In this context, we demonstrate a versatile, cost-effective and efficient method for fabricating graphene supercapacitor electrodes using Laser Induced Graphene (LIG). A CO 2 laser beam ...

Pioneering flexible micro-supercapacitors, designed for exceptional energy and power density, transcend conventional storage limitations. Interdigitated electrodes (IDEs) based on laser-induced ...

# Laser-induced graphene capacitors

Laser-induced graphene (LIG) can be obtained via a practically convenient approach, but its amorphous characteristics limit its applications. Here, the authors report a ...

Interdigitated electrodes (IDEs) based on laser-induced graphene (LIG), augmented with metal-oxide modifiers, harness synergies with layered graphene to achieve superior capacitance.

Supercapacitors, with the merits of both capacitors for safe and fast charge and batteries for high energy storage have drawn tremendous attention. Recently, laser scribed graphene has been ...

For example, Chen reported an ultra-flexible MSC based on ZnP ultrathin nanosheets decorated in laser-induced graphene foams which could be even reversibly ...

An EC that combines the power performance of capacitors with the high energy density of batteries would represent a major advance in energy storage technology (5, 6), but ...

In this work, we demonstrate a facile, rational and novel strategy to assemble micro-supercapacitors (MSCs) via employing laser-induced graphene (LIG) microelectrodes ...

With the wide application of portable wearable devices, a variety of electronic energy storage devices, including micro-supercapacitors (MSCs), have attracted wide ...

We demonstrate a simple, but efficient route to fabricate porous graphene with effective heteroatom incorporation and metal nanoparticles anchoring by laser direct writing ...

The maskless and chemical-free conversion and patterning of synthetic polymer precursors into laser-induced graphene (LIG) via laser-induced pyrolysis is a relatively new but ...

In 2014, Boris I. Yakobson et al. [22] successfully prepared three-dimensional porous graphene (also known as laser-induced graphene, LIG) with large specific surface area ...

The maskless and chemical-free conversion and patterning of synthetic polymer precursors into laser-induced graphene (LIG) via laser-induced pyrolysis is a relatively new but growing field. Bioderived precursors from ...

Areal capacitance of the measured microsupercapacitors in the 1M H 2 SO 4 PVA gel electrolyte at 0.1 mA/cm 2, as a function of the main laser parameters: (a) laser ...

Among all capacitor technologies, laser-induced graphene (LIG)-based capacitors are within the spotlight nowadays due to their high flexibility and simple ...

Laser-induced graphene (LIG) has been emerging as a promising electrode material for supercapacitors due to

its cost-effective and straightforward fabrication approach. ...

The laser-induced graphene technique is recognized nowadays as one of the most effective methods for manufacturing flexible and eco-friendly supercapacitors; however, ...

Interdigitated electrodes (IDEs) based on laser-induced graphene (LIG), augmented with metal-oxide modifiers, harness synergies with layered graphene to achieve ...

In this study, we use a CO 2 laser to synthesize laser-induced graphene (LIG) in a single step at a low cost. We investigate the coating of MWCNTs on LIG to fabricate ...

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