TECHNOLOGY OFFER

Production method of graphene foil with a pre-defined number of graphene layers

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Institute of Microelectronics and Photonics

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Patent information

Technology readiness level:
9

Title: "Production method of graphene foil with a pre-defined number of graphene layers"

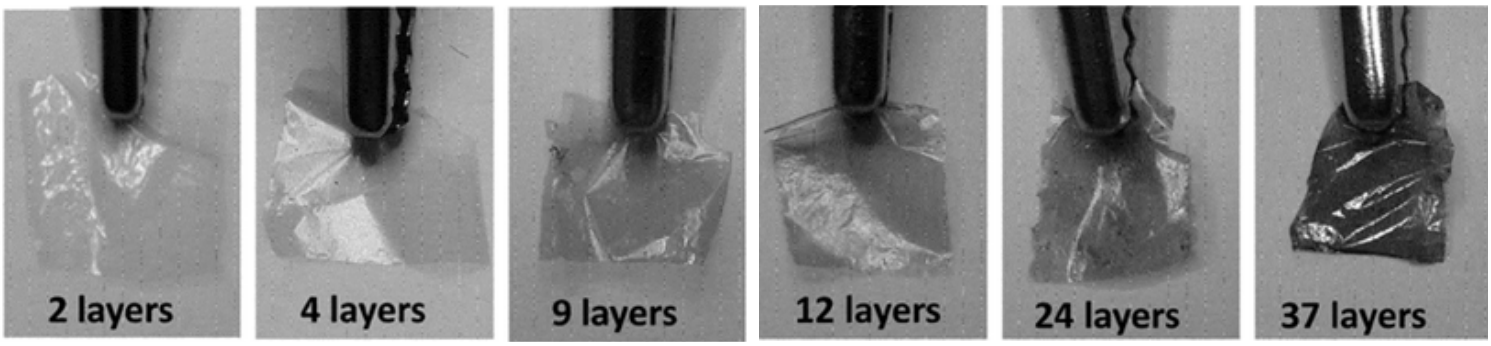
Patent number: EP3098198

Priority Date: 29.05.2015

Inventors: Aleksandra Krajewska, Iwona Pasternak, Aleksandra Przewłoka, Włodzimierz Strupiński.

Jurisdictions: France, Germany, Great Britain, Belgium, Netherlands, Spain, Italy, Poland.

Preparation method of graphene foil with a pre-defined number of graphene layers, which has been obtained using CVD graphene deposited on a metallic substrate (in particular a copper substrate) and subsequently transferred onto a polymer substrate, e.g. polymethyl methacrylate (PMMA) or other. The number of graphene layers N is arbitrary, e.g., N = 2, N = 4, N = 9, N = 12, N = 24, N = 37, or N = 50. Details of the technology from 10.1063/1.4974457 "Fabrication and applications of multi-layer graphene stack on transparent polymer".



Pictures from: 10.1063/1.4974457

Technology Summary

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The potential behind the technology

The multi-layer stacks might be successfully used as a saturable absorber (N = 50) for an Erbium-doped fiber laser generating ultra-short 237-fs pulses at the 1562-nm wavelength. Details of the optical spectrum: 10.1063/1.4974457.

Technology Advantages

- Our method enables the rapid production of graphene foil with a pre-defined number of graphene layers;
- With our technology it is possible to transfer the PMMA/graphene xN stack on any other substrate, e.g. glass, silicon or polymer, which in consequence significantly increases the range of possible graphene applications;
- This technology allows to transfer an unlimited number of graphene layers and guarantees saving of the preparation time of a given substrate with a higher number of graphene layers than when compared with the standard "layer by layer" transfer method.

Application

Multilayer graphene can be used in both control and management of the thermal properties of nanostructures, as saturable absorbers in femtosecond lasers or electrical contacts in LEDs.

Implementation easiness

Implementation requires access to CVD graphene deposited on a metallic substrate, polymethyl methacrylate (PMMA) or other polymer, anisole, spin coater, electrochemical delamination setup, glassware, chemical accessories, deionized water, acetone, hot plate, and fume hood. The technology requires a manually skilled operator.

Keywords

Graphene foil, graphene layers, CVD graphene, graphene.

Collaboration type

License agreement or sale agreement

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komercjalizacja@imif.lukasiewicz.gov.pl

Łukasiewicz Reaserch Network – Institute of Microelectronics and Photonics
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