



## Graphene transfer on highly corrugated black silicon surface

Plakhotnyuk, Maksym; Shvets, Violetta; Whelan, Patrick Rebsdorf; Mackenzie, David; Bøggild, Peter; Hansen, Ole

*Publication date:*  
2015

[Link back to DTU Orbit](#)

*Citation (APA):*

Plakhotnyuk, M., Shvets, V., Whelan, P. R., Mackenzie, D., Bøggild, P., & Hansen, O. (2015). *Graphene transfer on highly corrugated black silicon surface*. Abstract from 6th Symposium on Carbon and Related Nanomaterials, Copenhagen, Denmark.

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



Title of the abstract
Graphene transfer on highly corrugated black silicon surface
Name (Your name as you want it displayed on the website and in the book of abstracts)
Maksym M. Plakhotnyuk, Violetta Shvets, Patrick R. Whelan, David M.A Mackenzie, Peter Bøggild, Ole Hansen
Your affiliation
Department of Micro- and Nanotechnology, Technical University of Denmark, Denmark
Abstract text (max 200 words)
<p>The 2D material graphene has a great promise for applications in photonics and electronics, due to its unique optical, electrical, mechanical, thermal and chemical properties. Investigation of graphene properties on rough nanotextured surfaces can give rise a new unique application of graphene. Graphene on highly corrugated surfaces can exhibit properties like suspended graphene; however, its behavior on such surfaces is not well investigated. Graphene transfer to corrugated and nanotextured surfaces has only been investigated for antireflective and mechanical properties [1-3]. We present graphene transfer methods on highly corrugated black silicon surface. We show successful transfer of graphene monolayers with different transfer techniques (dry, wet and stamp methods) on black silicon surfaces (roughness 200-300 nm) and its adhesion to corrugated surfaces. AFM and SEM images show graphene monolayer flakes in the range on 1-5 <math>\mu\text{m}</math> on black silicon surfaces. Raman spectra confirm the presence of graphene on the black silicon samples.</p>
References (If you have any references. Maximum 3.)
<p>[1] Kumar, R., 2013, "Antireflection properties of graphene layers on planar and textured silicon surfaces.," <i>Nanotechnology</i>, <b>24</b>(16).</p> <p>[2] Gao, W., and Huang, R., 2011, "Effect of surface roughness on adhesion of graphene membranes," <i>J. Phys. D. Appl. Phys.</i>, <b>44</b>(45), p. 452001.</p> <p>[3] Reserbat-Plantey, A., Kalita, D., Ferlazzo, L., Autier-Laurent, S., Komatsu, K., Li, C., Weil, R., Han, Z., Ralko, A., Marty, L., Guéron, S., Bendiab, N., Bouchiat, H., and Bouchiat, V., 2014, "Strain superlattices and macroscale suspension of Graphene induced by corrugated substrates," <i>arXiv</i>, pp. 1–28.</p>
Insert research picture here (png or jpeg)
Mini CV (max 200 words)
<p>Presenter: Maksym Plakhotnyuk is a PhD student at DTU Nanotech. His current field of research is heterojunction silicon photovoltaic cell and graphene application in photovoltaics. He received his M.S.</p>



# CARBONHAGEN 2015

6th symposium on carbon and related nanomaterials  
Copenhagen, August 13-14, 2015

degrees in Microelectronics and Semiconductor Devices from Vinnytsia National Technical University, Ukraine (2007) and M.S degree in Electrical Engineering from University of Illinois (2013). He was awarded Fulbright Graduate Student Scholarship and University of Illinois Fellowship.

Insert your CV photo here (png or jpeg)

