

# Web of Science

Full Text from Publisher

Look Up Full Text



Save to EndNote online

Add to Marked List

17 of 491

## Intraband carrier dynamics in Landau-quantized multilayer epitaxial graphene

By: [Mittendorff, M](#) (Mittendorff, Martin)<sup>[1,2]</sup>; [Orlita, M](#) (Orlita, Milan)<sup>[3,4]</sup>; [Potemski, M](#) (Potemski, Marek)<sup>[3]</sup>; [Berger, C](#) (Berger, Claire)<sup>[5,6]</sup>; [de Heer, WA](#) (de Heer, Walter A.)<sup>[5,7]</sup>; [Schneider, H](#) (Schneider, Harald)<sup>[1]</sup>; [Helm, M](#) (Helm, Manfred)<sup>[1,2]</sup>; [Winnerl, S](#) (Winnerl, Stephan)<sup>[1]</sup>

[View ResearcherID and ORCID](#)

### NEW JOURNAL OF PHYSICS

Volume: 16

Article Number: 123021

DOI: 10.1088/1367-2630/16/12/123021

Published: DEC 8 2014

[View Journal Impact](#)

### Abstract

We investigate the low-energy carrier dynamics in Landau quantized multilayer epitaxial graphene on (000 (1) over bar) SiC, using 14 meV photons. The THz absorption is dominated by Landau-level transitions within the conduction bands of several graphene layers with different doping. Varying the magnetic field allows us to tune the THz-induced response from induced transmission around B=0 to induced absorption at intermediate fields (1.5 T-3.3 T) and back to induced transmission at higher fields (3.3 T-7 T). The main features of this complex response are explained by a strong dependence of the absorption on the electron temperature. Furthermore a prolonged relaxation at high fields, which is attributed to reduced scattering via optical phonons, is observed.

### Keywords

**Author Keywords:** [graphene](#); [magnetic field](#); [carrier dynamics](#)

**KeyWords Plus:** [TERAHERTZ-PROBE SPECTROSCOPY](#); [MULTIPLICATION](#); [CONFINEMENT](#)

### Author Information

**Reprint Address:** Mittendorff, M (reprint author)

+ Univ Maryland, Inst Res Elect & Appl Phys, College Pk, MD 20742 USA.

#### Addresses:

- + [ 1 ] Helmholtz Zentrum Dresden Rossendorf, D-01314 Dresden, Germany
- + [ 2 ] Tech Univ Dresden, D-01062 Dresden, Germany
- + [ 3 ] CNRS UJF UPS INSA, Grenoble High Magnet Field Lab, F-38042 Grenoble, France
- + [ 4 ] Charles Univ Prague, Fac Math & Phys, CR-12116 Prague, Czech Republic
- + [ 5 ] Georgia Inst Technol, Atlanta, GA 30332 USA
- + [ 6 ] Univ Grenoble Alpes, CNRS, Inst Neel, F-38042 Grenoble, France
- + [ 7 ] King Abdulaziz Univ, Dept Phys, Jeddah 21413, Saudi Arabia

**E-mail Addresses:** [Martin.Mittendorff@email.com](mailto:Martin.Mittendorff@email.com); [S.Winnerl@hzdr.de](mailto:S.Winnerl@hzdr.de)

### Funding

Funding Agency	Grant Number
German Science Foundation DFG	Wi3114/3
MOMB project	ERC-2012-AdG-320590
EC Graphene Flagship	
AFSOR	

### Citation Network

8 Times Cited  
36 Cited References  
[View Related Records](#)

[Create Citation Alert](#)

(data from Web of Science Core Collection)

### All Times Cited Counts

8 in All Databases  
8 in Web of Science Core Collection  
0 in BIOSIS Citation Index  
0 in Chinese Science Citation Database  
0 in Data Citation Index  
0 in Russian Science Citation Index  
0 in SciELO Citation Index

### Usage Count

Last 180 Days: 4  
Since 2013: 50  
[Learn more](#)

### Most Recent Citation

Yang, Wen-Xing. [Dynamic control of coherent pulses via destructive interference in graphene under Landau quantization](#). SCIENTIFIC REPORTS, MAY 31 2017.

[View All](#)

**This record is from:**  
**Web of Science Core Collection**  
- Science Citation Index Expanded

### Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

NSF	MRSEC-DMR 0820382
European Community's Seventh Framework Programme	226716

[View funding text](#)

### Publisher

IOP PUBLISHING LTD, TEMPLE CIRCUS, TEMPLE WAY, BRISTOL BS1 6BE, ENGLAND

### Categories / Classification

**Research Areas:** Physics

**Web of Science Categories:** Physics, Multidisciplinary

### Document Information

**Document Type:** Article

**Language:** English

**Accession Number:** WOS:000346821800010

**ISSN:** 1367-2630

### Journal Information

**Table of Contents:** [Current Contents Connect](#)

**Impact Factor:** [Journal Citation Reports](#)

### Other Information

**IDS Number:** AX3DY

**Cited References in Web of Science Core Collection:** **36**

**Times Cited in Web of Science Core Collection:** **8**