

# Nuno Miguel Machado Reis Peres

## Identification

### Personal identification

Full name

Nuno Miguel Machado Reis Peres

### Citation names

Peres, Nuno

### Author identifiers

Ciência ID

6C10-173F-FEF1

ORCID iD

0000-0002-7928-8005

## Education

	Degree	Classification
2012 - 2012 Concluded	Agregação em Física (Título de Agregado)	Aprovado
	Universidade do Minho, Portugal	
1996 - 1998 Concluded	Mestrado em Física (Mestrado)	Física
	Fundação da Faculdade de Ciências da Universidade de Lisboa, Portugal	
1998 Concluded	Física (Doutoramento) Major in Sem especialidade	
	Universidade de Évora, Portugal <i>"The Many-electron Problem in Novel Low-dimensional Materials" (THESIS/DISSERTATION)</i>	
1986/09 - 1991/07 Concluded	Licenciatura em Ensino de Física e Química (Licenciatura)	17
	Universidade de Évora, Portugal	

## Affiliation

### Teaching in Higher Education

2013 - 2020                      Full Professor (University Teacher)  
Universidade do Minho, Portugal

### Positions / Appointments

2017 - 2018                      Conselho de gestão ou órgão correspondente  
Universidade do Minho, Portugal

2017 - 2018                      Diretor ou presidente da unidade orgânica  
Universidade do Minho, Portugal

2016 - 2018                      Conselho científico/técnico-científico ou órgão correspondente  
Universidade do Minho, Portugal

2016 - 2017                      Conselho pedagógico  
Universidade do Minho, Portugal

2014 - 2016                      Conselho de gestão ou órgão correspondente  
Universidade do Minho, Portugal

2014 - 2016                      Coordenação ou direção de centro de investigação, departamento ou equivalente  
Universidade do Minho, Portugal

## Projects

### Grant

	Designation	Funders
2011/04/01 - Current	FET Flagship Support for European Excellence in Information Technology info:eu-repo/grantAgreement/EC/FP7/284891/EU	European Commission, Belgium
	Universidade do Minho, Portugal	

### Contract

	Designation	Funders
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2018/07/15 - 2021/07/14	Non Linear Optical Properties of Layered Materials PTDC/FIS-MAC/28887/2017	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Porto, Portugal Universidade do Minho, Portugal	
2018/07/01 - 2021/06/30	Mid- and far-infrared plasmonic biosensing with graphene PTDC/FIS-MAC/28114/2017	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Minho, Portugal Universidade do Porto, Portugal International Iberian Nanotechnology Laboratory, Portugal	
2018/07/01 - 2021/06/30	Towards high speed optical devices by exploiting the unique electronic properties of engineered 2D materials PTDC/NAN-OPT/29265/2017	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Minho, Portugal	
2016/07/01 - 2019/12/31	Large area two dimensional heterostructures for photodetectors PTDC/FIS-NAN/3668/2014	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Minho, Portugal International Iberian Nanotechnology Laboratory, Portugal	
2014/03/10 - 2015/07/31	Emergent quantum states in novel 2D materials EXPL/FIS-NAN/1728/2013	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade de Lisboa Instituto Superior Técnico, Portugal Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento, Portugal Universidade do Minho, Portugal Universidade de Évora, Portugal	
2007/07/01 - 2011/06/30	Studies of fermionic and bosonic ultra-cold atoms systems PTDC/FIS/64926/2006	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Minho, Portugal Universidade do Minho Centro de Física, Portugal Universidade de Lisboa Instituto Superior Técnico, Portugal	
2007/07/01 - 2009/12/31	Transport properties of graphene and related systems PTDC/FIS/64404/2006	Fundação para a Ciência e a Tecnologia, Portugal
	Universidade do Minho, Portugal Universidade do Minho Centro de Física, Portugal Universidade do Porto Faculdade de Ciências, Portugal	

2005/07/01 -  
2008/12/30Effects of the interplay between electronic correlations and  
low dimensionality in complex materials  
POCI/FIS/58133/2004Fundação para a  
Ciência e a  
Tecnologia,  
PortugalUniversidade do Minho, Portugal  
Universidade do Minho Centro de Física, Portugal  
Universidade de Lisboa Instituto Superior Técnico, Portugal

## Outputs

### Publications

- |                  |   |  |
|------------------|---|--|
| Book             | 1 | Gonçalves, P.A.D.; Peres, N.M.R.. 2016. <i>An Introduction to Graphene Plasmonics</i> . <a href="http://www.scopus.com/inward/record.url?eid=2-s2.0-84976903013&amp;partnerID=MN8TOARS">http://www.scopus.com/inward/record.url?eid=2-s2.0-84976903013&amp;partnerID=MN8TOARS</a> .<br>10.1142/9948  |
| Conference paper | 1 | Vasilevskiy, M.I.; Santos, J.E.; Pereira, R.M.; Bludov, Y.V.; Vaz, F.; Peres, N.M.R.. 2016. "Graphene and polarisable nanoparticles: Looking good together?".<br>10.1109/ICTON.2016.7550390  |
|                  | 2 | Bludov, Yu.V.; Ferreira, A.; Peres, N.M.R.; Santos, J.E.; Vasilevskiy, M.I.. 2015. "Graphene-based nanostructures: Plasmonics in the THz range".<br>10.1109/ICTON.2015.7193346   |
|                  | 3 | Peres, N.; Afonso, A.; Alves, M.A.; Pinho, F.T.. 2008. "Numerical simulation of heat transfer enhancement in laminar flow of viscoelastic fluids through a rectangular channel". 1444-1446.<br>10.1063/1.2964604   |
| Journal article  | 1 | Yu. V. Bludov; N. M. R. Peres; M. I. Vasilevskiy. 2020. "Excitation of localized graphene plasmons by a metallic slit". <i>Physical Review B</i> . <a href="https://doi.org/10.1103/PhysRevB.101.075415">https://doi.org/10.1103/PhysRevB.101.075415</a> .<br>10.1103/PhysRevB.101.075415  |
|                  | 2 | G Catarina; N M R Peres; J Fernández-Rossier. 2020. "Magneto-optical Kerr effect in spin split two-dimensional massive Dirac materials". <i>2D Materials</i> . <a href="https://doi.org/10.1088/2053-1583/ab6781">https://doi.org/10.1088/2053-1583/ab6781</a> .<br>10.1088/2053-1583/ab6781   |
|                  | 3 | J C G Henriques; G B Ventura; C D M Fernandes; N M R Peres. 2020. "Optical absorption of single-layer hexagonal boron nitride in the ultraviolet". <i>Journal of Physics: Condensed Matter</i> . <a href="https://doi.org/10.1088/1361-648X/ab47b3">https://doi.org/10.1088/1361-648X/ab47b3</a> .<br>10.1088/1361-648X/ab47b3   |
|                  | 4 | J. C. G. Henriques; G. Catarina; A. T. Costa; J. Fernández-Rossier; N. M. R. Peres. 2020. "Excitonic magneto-optical Kerr effect in two-dimensional transition metal dichalcogenides induced by spin proximity". <i>Physical Review B</i> . <a href="https://doi.org/10.1103/PhysRevB.101.045408">https://doi.org/10.1103/PhysRevB.101.045408</a> .<br>10.1103/PhysRevB.101.045408 |

- 5 J. C. G. Henriques; N. M. R. Peres. 2020. "Excitons in phosphorene: A semi-analytical perturbative approach". *Physical Review B*. <https://doi.org/10.1103/PhysRevB.101.035406>.  
10.1103/PhysRevB.101.035406
- 6 Y V Bludov; J N Gomes; G A Farias; J Fernández-Rossier; M I Vasilevskiy; N M R Peres. 2019. "Hybrid plasmon-magnon polaritons in graphene-antiferromagnet heterostructures". *2D Materials* 6 (4): 045003-045003. <https://doi.org/10.1088/2053-1583/ab2513>.  
10.1088/2053-1583/ab2513
- 7 A. J. Chaves; N. M. R. Peres. 2019. "Propagation of surface plasmons on plasmonic Bragg gratings". *Journal of Applied Physics* 125 (24): 243106-243106. <https://doi.org/10.1063/1.5099060>.  
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- 8 F. Ferreira; A. J. Chaves; N. M. R. Peres; R. M. Ribeiro. 2019. "Excitons in hexagonal boron nitride single-layer: a new platform for polaritonics in the ultraviolet". *Journal of the Optical Society of America B*. <https://doi.org/10.1364/JOSAB.36.000674>.  
10.1364/JOSAB.36.000674
- 9 Eduardo J. C. Dias; N. M. R. Peres. 2017. "Controlling Spoof Plasmons in a Metal Grating Using Graphene Surface Plasmons". *ACS Photonics*. <https://doi.org/10.1021/acsp Photonics.7b00629>.  
10.1021/acsp Photonics.7b00629
- 10 P. A. D. Gonçalves; Sanshui Xiao; N. M. R. Peres; N. Asger Mortensen. 2017. "Hybridized Plasmons in 2D Nanoslits: From Graphene to Anisotropic 2D Materials". *ACS Photonics*. <https://doi.org/10.1021/acsp Photonics.7b00558>.  
10.1021/acsp Photonics.7b00558
- 11 Chaves, A.J.; Ribeiro, R.M.; Frederico, T.; Peres, N.M.R.. 2017. "Excitonic effects in the optical properties of 2D materials: An equation of motion approach". *2D Materials* 4 (2). <http://www.scopus.com/inward/record.url?eid=2-s2.0-85021374683&partnerID=MN8TOARS>.  
10.1088/2053-1583/aa6b72
- 12 Gonçalves, P.A.D.; Bozhevolnyi, S.I.; Asger Mortensen, N.; Peres, N.M.R.. 2017. "Universal description of channel plasmons in two-dimensional materials". *Optica* 4 (6): 595-600. <http://www.scopus.com/inward/record.url?eid=2-s2.0-85021058902&partnerID=MN8TOARS>.  
10.1364/OPTICA.4.000595
- 13 Ventura, G.B.; Passos, D.J.; Lopes Dos Santos, J.M.B.; Viana Parente Lopes, J.M.; Peres, N.M.R.. 2017. "Gauge covariances and nonlinear optical responses". *Physical Review B* 96 (3). <http://www.scopus.com/inward/record.url?eid=2-s2.0-85026406305&partnerID=MN8TOARS>.  
10.1103/PhysRevB.96.035431
- 14 Chaves, A.J.; Peres, N.M.R.; Low, T.. 2016. "Pumping electrons in graphene to the M point in the Brillouin zone: Emergence of anisotropic plasmons". *Physical Review B* 94 (19). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84997646354&partnerID=MN8TOARS>.  
10.1103/PhysRevB.94.195438
- 15 Gonçalves, P.A.D.; Dias, E.J.C.; Xiao, S.; Vasilevskiy, M.I.; Mortensen, N.A.; Peres, N. M.R.. 2016. "Graphene Plasmons in Triangular Wedges and Grooves". *ACS Photonics* 3 (11): 2176-2183. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84996615252&partnerID=MN8TOARS>.  
10.1021/acsp Photonics.6b00674

- 16 Amorim, B.; Ribeiro, R.M.; Peres, N.M.R.. 2016. "Multiple negative differential conductance regions and inelastic phonon assisted tunneling in graphene/h-BN/graphene structures". *Physical Review B* 93 (23). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84975127381&partnerID=MN8TOARS>.  
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- 17 Vieira, N.C.S.; Borme, J.; MacHado, G.; Cerqueira, F.; Freitas, P.P.; Zucolotto, V.; Peres, N.M.R.; Alpuim, P.. 2016. "Graphene field-effect transistor array with integrated electrolytic gates scaled to 200 nm". *Journal of Physics Condensed Matter* 28 (8). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84957991413&partnerID=MN8TOARS>.  
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- 18 Bludov, Y.V.; Peres, N.M.R.; Smirnov, G.; Vasilevskiy, M.I.. 2016. "Scattering of surface plasmon polaritons in a graphene multilayer photonic crystal with inhomogeneous doping". *Physical Review B* 93 (24). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84976902856&partnerID=MN8TOARS>.  
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- 19 Cysne, T.P.; Rappoport, T.G.; Ferreira, A.; Lopes, V.P.J.M.; Peres, N.M.R.. 2016. "Numerical calculation of the Casimir-Polder interaction between a graphene sheet with vacancies and an atom". *Physical Review B* (23). <http://www.scopus.com/inward/record.url?eid=2-s2.0-85001976228&partnerID=MN8TOARS>.  
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- 21 Cheng, S.; Yu, J.; Ma, T.; Peres, N.M.R.. 2015. "Strain-induced edge magnetism at the zigzag edge of a graphene quantum dot". *Physical Review B - Condensed Matter and Materials Physics* 91 (7). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84922514705&partnerID=MN8TOARS>.  
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- 22 Vasilevskiy, M.I.; Santiago-Pérez, D.G.; Trallero-Giner, C.; Peres, N.M.R.; Kavokin, A.. 2015. "Exciton polaritons in two-dimensional dichalcogenide layers placed in a planar microcavity: Tunable interaction between two Bose-Einstein condensates". *Physical Review B - Condensed Matter and Materials Physics* 92 (24). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84954176266&partnerID=MN8TOARS>.  
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- 24 Oliver, D.; Garcia, J.H.; Rappoport, T.G.; Peres, N.M.R.; Pinheiro, F.A.. 2015. "Cloaking resonant scatterers and tuning electron flow in graphene". *Physical Review B - Condensed Matter and Materials Physics* 91 (15). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84929104682&partnerID=MN8TOARS>.  
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- 25 Bludov, Yu.V.; Smirnova, D.A.; Kivshar, Yu.S.; Peres, N.M.R.; Vasilevskiy, M.I.. 2015. "Discrete solitons in graphene metamaterials". *Physical Review B - Condensed Matter and Materials Physics* 91 (4). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84921802593&partnerID=MN8TOARS>.  
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- 28 Sorger, C.; Preu, S.; Schmidt, J.; Winnerl, S.; Bludov, Y.V.; Peres, N.M.R.; Vasilevskiy, M.I.; Weber, H.B.. 2015. "Terahertz response of patterned epitaxial graphene". *New Journal of Physics* 17 (5). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84936162141&partnerID=MN8TOARS>. 10.1088/1367-2630/17/5/053045
- 29 Chaves, A.J.; Peres, N.M.R.; Pinheiro, F.A.. 2015. "Anderson localization of light in disordered superlattices containing graphene layers". *Physical Review B - Condensed Matter and Materials Physics* 92 (19). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84949591170&partnerID=MN8TOARS>. 10.1103/PhysRevB.92.195425
- 30 Kort-Kamp, W.J.M.; Amorim, B.; Bastos, G.; Pinheiro, F.A.; Rosa, F.S.S.; Peres, N.M.R.; Farina, C.. 2015. "Active magneto-optical control of spontaneous emission in graphene". *Physical Review B - Condensed Matter and Materials Physics* 92 (20). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84949681315&partnerID=MN8TOARS>. 10.1103/PhysRevB.92.205415
- 31 Uchoa, B.; Yang, L.; Tsai, S.-W.; Peres, N.M.R.; Neto, A.H.C.. 2014. "Orbital symmetry fingerprints for magnetic adatoms in graphene". *New Journal of Physics* 16. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84894203229&partnerID=MN8TOARS>. 10.1088/1367-2630/16/1/013045
- 32 Bludov, Y.V.; Smirnova, D.A.; Kivshar, Y.S.; Peres, N.M.R.; Vasilevskiy, M.I.. 2014. "Nonlinear TE-polarized surface polaritons on graphene". *Physical Review B - Condensed Matter and Materials Physics* 89 (3). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84893097949&partnerID=MN8TOARS>. 10.1103/PhysRevB.89.035406
- 33 Peres, N.M.R.; Bludov, Yu.V.; Santos, J.E.; Jauho, A.-P.; Vasilevskiy, M.I.. 2014. "Optical bistability of graphene in the terahertz range". *Physical Review B - Condensed Matter and Materials Physics* 90 (12). <http://www.scopus.com/inward/record.url?eid=2-s2.0-84907228570&partnerID=MN8TOARS>. 10.1103/PhysRevB.90.125425
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## Distinctions

### Award

2011 Gulbenkian Science Prize  
Fundação Calouste Gulbenkian, Portugal

2009                      Research Prize of the University of Minho  
                                 Universidade do Minho, Portugal

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1991                      University of Évora Merit Prize  
                                 Universidade de Évora, Portugal

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