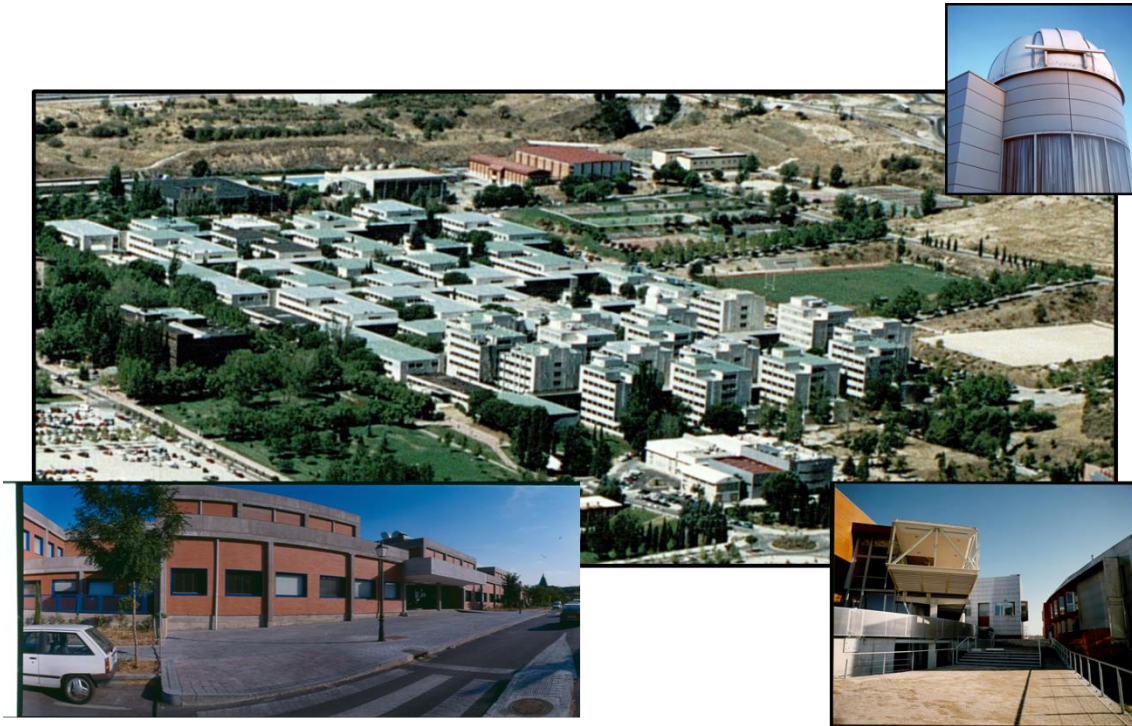




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DEPARTAMENTO DE FÍSICA TEÓRICA DE LA MATERIA CONDENSADA MEMORIA DE INVESTIGACIÓN 2016

DEPARTAMENTO DE FÍSICA TEÓRICA DE LA MATERIA CONDENSADA

MEMORIA DE INVESTIGACIÓN 2016

La presente Memoria de Investigación 2016, elaborada por la Biblioteca de Ciencias, viene a dar cuenta de los resultados de la investigación que se realiza en el Departamento de Física Teórica de la Materia Condensada de la Facultad de Ciencias.

La información procede del Portal de Producción Científica (Imarina), de distintas bases de datos así como de la información suministrada por el personal docente e investigador del Departamento.

Contiene información relativa a:

- **PUBLICACIONES: 74**, de las que 70 son artículos y 4 otro tipo de publicaciones.
 - Cuadro con información relativa a los distintos tipos de publicaciones. En relación con los artículos incluimos ratio: número de publicaciones / PDI de la Facultad, así como información sobre Indicadores de calidad: artículos editados en revistas del primer cuartil - Q1 de JCR (Journal Citation Reports) o de SJR (Scimago Journal Rank) 2016; información sobre artículos sin factor de impacto
 - Relación completa de Artículos ordenados alfabéticamente
 - Relación completa de otras publicaciones [Libros, Capítulos de Libros, Conferencia publicada, Editoriales, Notas, *Letters*, *Working Papers*, Erratum, Libro de Actas, *Meeting-Abstracts* ordenadas alfabéticamente
- **PROYECTOS DE INVESTIGACIÓN: 20**
- **AYUDAS INDIVIDUALES: 5**
- **TESIS DOCTORALES: 10**
 - Cuadro con información de las Tesis Doctorales leídas en 2016 en el Departamento y de la Facultad de Ciencias, con información de las dirigidas, tutorizadas y codirigidas en otras instituciones.
 - Relación de completa de Tesis Doctorales ordenadas por programa de Doctorado y título.

PUBLICACIONES

	Total	Artículos	Otras publicaciones	% art./total	Ratio Publicaciones /PDI	Indicadores de Calidad			
						Q1	%	SIN FI	%
FISICA TEORICA DE LA MATERIA CONDENSADA	74	70	4	4,99%	1,42	62	88,57%	0	0,00%
TOTAL FACULTAD CIENCIAS	1.598	1.403	195		1,86	1025	73,06%	81	5,77%

Indicadores de calidad:

Q1: artículos publicados en revistas del primer cuartil

SIN FI: artículos publicados en revistas sin factor de impacto (sin indicador de calidad)

ARTÍCULOS

1) Benito, M; Sánchez Muñoz, C; Navarrete-Benlloch, C (2016). Degenerate parametric oscillation in quantum membrane optomechanics. PHYSICAL REVIEW A, 93(2), 023846
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2) Berceanu, AC; Price, HM; Ozawa, T; Carusotto, I (2016). Momentum-space Landau levels in driven-dissipative cavity arrays. PHYSICAL REVIEW A, 93(1), 013827
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4) Casas, JA; Moreno, JM; Robles, S; Rolbiecki, K (2016). Reducing the fine-tuning of gauge-mediated SUSY breaking. EUROPEAN PHYSICAL JOURNAL C, 76(8)
<https://doi.org/10.1140/epjc/s10052-016-4305-4>

5) Chacón, E; Tarazona, P (2016). Capillary wave Hamiltonian for the Landau-Ginzburg-Wilson density functional. JOURNAL OF PHYSICS CONDENSED MATTER, 28(24), 244014
<https://doi.org/10.1088/0953-8984/28/24/244014>

6) Cinacchi, G; Pintus, AM; Tani, A (2016). Diffusion of helical particles in the screw-like nematic phase. JOURNAL OF CHEMICAL PHYSICS, 145(13)
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9) Cuerda, J; García-Vidal, FJ; Bravo-Abad, J (2016). Spatio-temporal Modeling of Lasing Action in Core-Shell Metallic Nanoparticles. ACS PHOTONICS, 3(10), 1952-1960

<https://doi.org/10.1021/acsphotonics.6b00501>

10) De la Torre, B; Ellner, M; Pou, P; Nicoara, N; Pérez, R; Gómez-Rodríguez, JM (2016). Atomic-Scale Variations of the Mechanical Response of 2D Materials Detected by Noncontact Atomic Force Microscopy. PHYSICAL REVIEW LETTERS, 116(24)

<https://doi.org/10.1103/PhysRevLett.116.245502>

11) Del Pino, J; García-Vidal, F; Feist, J (2016). Exploiting Vibrational Strong Coupling to Make an Optical Parametric Oscillator out of a Raman Laser. PHYSICAL REVIEW LETTERS, 117(27)

<https://doi.org/10.1103/PhysRevLett.117.277401>

12) Delgado-Buscalioni, R (2016). Thermodynamics of adaptive molecular resolution. PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A: MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES, 374(2080)

<https://doi.org/10.1098/rsta.2016.0152>

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15) Domínguez, F; Yeyati, AL (2016). Reprint of: Quantum interference in a Cooper pair splitter: The three sites model. PHYSICA E: LOW-DIMENSIONAL SYSTEMS AND NANOSTRUCTURES, 82, 160 - 167

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- 33) López Carreño, J. C.; Sánchez Muñoz, C.; del Valle, E.; Laussy, F. P. (2016). Excitation with quantum light. II. Exciting a two-level system. PHYSICAL REVIEW A, 94(6), 063826
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- 34) Lustemberg, PG; Pan, Y; Shaw, B-J; Grinter, D; Pang, C; Thornton, G; Pérez, R; Ganduglia-Pirovano, MV; Nilus, N (2016). Diffusion Barriers Block Defect Occupation on Reduced CeO2 (111). PHYSICAL REVIEW LETTERS, 116(23)
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- 36) Martínez-Casado, R; Chen, VH-Y; Mallia, G; Harrison, NM (2016). A hybrid-exchange density functional study of the bonding and electronic structure in bulk CuFeS2. JOURNAL OF CHEMICAL PHYSICS, 144(18)
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- 68) Wu, Ning; Feist, Johannes; García-Vidal, Francisco J. (2016). When polarons meet polaritons: Exciton-vibration interactions in organic molecules strongly coupled to confined light fields. *PHYSICAL REVIEW B*, 94(19)
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OTRAS PUBLICACIONES

Se incluyen monografías, capítulos de libros, conferencias publicadas, correcciones, editoriales, letters, notas, libro de actas, meeting-abstracts y working papers

Capítulos de libros

1) Cinacchi, Giorgio; Ferrarini, Alberta; Frezza, Elisa; Giacometti, Achille and Kolli, Hima Bindu. Theory and Simulation Studies of Self-Assembly of Helical Particles. EN: Self-Assembling Systems: Theory and Simulation, 2016
<https://doi.org/10.1002/9781119113171.ch3>

Erratum

2) Del Valle, E; González-Tudela, A; Laussy, FP; Tejedor, C; Hartmann, MJ (2016). Erratum: Theory of Frequency-Filtered and Time-Resolved N -Photon Correlations (Physical Review Letters (2012) 109 (183601) DOI: 10.1103/PhysRevLett.109.183601). PHYSICAL REVIEW LETTERS, 116(24)
<https://doi.org/10.1103/PhysRevLett.116.249902>

Libro de actas

3) Csonka, Szabolcs; Fulop, G; Domínguez, F; Levy-Yeyati Mizrahi, Alfredo; D'Hollosy, S; Baumgartner, A; Makk, P; Schonenberger, C; Guzenko, VA; Madsen, MH; Nygard, J (2016). Quantum interference in a Cooper pair splitter device. APS MARCH MEETING 2016

PROYECTOS DE INVESTIGACIÓN

	Proyectos en ejecución	En colaboración
FISICA TEORICA DE LA MATERIA CONDENSADA	20	3
TOTAL FACULTAD CIENCIAS	399	80

1) Actividades fundacionales del IFIMAC

A desarrollar entre: 2013 - 2016
 Investigadores UAM: Garcia Vidal, Fco. Jose

2) Actuation and characterisation at the single bond limit- ACRITAS

Referencia: 317348
 A desarrollar entre: 2012 - 2016
 Investigadores UAM: Perez Perez, Ruben

3) CENTRO DE INVESTIGACION DE FISICA DE LA MATERIA CONDENSADA (IFIMAC)

Referencia: MDM-2014-0377
 A desarrollar entre: 2015 - 2019
 Investigadores UAM: Garcia Vidal, Fco. Jose

4) Comité de gestión del programa photonic advanced materials

Referencia: s2013//MIT-2740

A desarrollar entre: 2014 - 2018

Investigadores UAM: Cuevas Rodriguez, Juan Carlos / Hernandez Juarez, Beatriz

En colaboración: Departamento de Química Física Aplicada

5) Electrónica basada en Proteínas

Referencia: MAT2014-58982-JIN

A desarrollar entre: 2015 - 2018

Investigadores UAM: Zotti, Linda Angela

En colaboración: Departamento de Física de la Materia Condensada.

6) Electrónica clásica y cuántica del acoplo luz-materia

Referencia: FIS2015-64951-R

A desarrollar entre: 2016 - 2018

Investigadores UAM: Fernandez Dominguez, Antonio Isaac / Valle Reboul, Elena Del

7) Fenómenos cuánticos en plasmonica

Referencia: MAT2014-53432-C5-5-R

A desarrollar entre: 2015 - 2017

Investigadores UAM: Garcia Vidal, Fco. Jose / Feist, Johannes

8) Frontiers in plasmonics; Transformation Optics, Quantum and Nonlinear Phenomena

Referencia: GA290981

A desarrollar entre: 2012 - 2017

Investigadores UAM: Garcia Vidal, Fco. Jose

9) Hydrodynamics of colloidal clustering in different dynamics regimes

Referencia: GAPRF54312-ND9

A desarrollar entre: 2014 - 2016

Investigadores UAM: Delgado Buscalioni, Rafael

10) Interacciones, topología y efectos no-estacionarios en transporte cuántico

Referencia: FIS2014-55486-P

A desarrollar entre: 2015 - 2017

Investigadores UAM: Levy-Yeyati Mizrahi, Alfredo

11) Materia blanda y nanofluidos en múltiples escalas

Referencia: FIS2013-47350-C5-1-R

A desarrollar entre: 2014 - 2017

Investigadores UAM: Velasco Caravaca, Enrique / Tarazona Lafarga, Pedro Jose / Delgado Buscalioni, Rafael / Cinacchi, Giorgio

12) Mesoscopic plasmonics: bridging classical and quantum nano-optics- mesoplas

Referencia: PCIG14-GA-2013-630996

A desarrollar entre: 2015 - 2019

Investigadores UAM: Monreal Velez, Rosa / Fernandez Dominguez, Antonio Isaac

13) Mezcla de nanofluidos controlada por luz

Referencia: FIS2013-50510-EXP

A desarrollar entre: 2014 - 2016

Investigadores UAM: Saenz Gutierrez, Juan Jose / Balboa Usabiaga, Florencio / Marques Ponce, Manuel Ignacio / Delgado Buscalioni, Rafael
 En colaboración: Departamento de Física de Materiales. Departamento de Física de la Materia Condensada

14) Microscopias de túnel y fuerzas en materiales 2D, óxidos reducibles y biomoléculas en un entorno y condiciones de operación realistas

Referencia: MAT2014-54484-P
 A desarrollar entre: 2015 - 2017
 Investigadores UAM: Perez Perez, Ruben

15) Modelización de materiales a escala nanométrica

Referencia: MAT2014-59966-R
 A desarrollar entre: 2015 - 2017
 Investigadores UAM: Ortega Mateo, Jose

16) Nuevos materiales electrónicos y fotonicos basados en sistemas topologicos fuertemente correlacionados

Referencia: MAT2015-66128-R
 A desarrollar entre: 2016 - 2018
 Investigadores UAM: Merino Troncoso, Jaime / Bravo Abad, Jorge

17) Óptica cuántica en semiconductores nanoestructurados

Referencia: MAT2014-53119-C2-1-R
 A desarrollar entre: 2015 - 2017
 Investigadores UAM: Viña Liste, Luis M. / Martin Fernandez, Maria Dolores
 Departamento de Física de Materiales.

18) Polariton condensates: from fundamental physics to quantum based devices - POLAFLOW

Referencia: GA308136
 A desarrollar entre: 2012 - 2017
 Investigadores UAM: Laussy, Fabrice Pierre

19) Strong coupling of organic molecules and plasmons - StroCOMP

Referencia: PCIG13-GA-2013-618229
 A desarrollar entre: 2014 - 2017
 Investigadores UAM: Garcia Vidal, Fco. Jose / Feist, Johannes

20) Transferencia radiativa de calor en nanoestructuras

Referencia: FIS2014-53488-P
 A desarrollar entre: 2015 - 2017
 Investigadores UAM: Cuevas Rodriguez, Juan Carlos

AYUDAS INDIVIDUALES

	Contratos Predoc	Juan de la Cierva	Ramón y Cajal	Otras	TOTAL
FISICA TEORICA DE LA MATERIA CONDENSADA	3	0	2	0	5
TOTAL FACULTAD CIENCIAS	64	8	19	7	98

Dotación adicional Ayudas para Contratos Predoctorales para la formación de Doctores

DIAZ CAMACHO, GUILLERMO. Referencia: BES-2015-072742 (2016-2019).

DIAZ FERNANDEZ, ALVARO. Referencia: BES-2015-073375 (2016-2019).

LEDESMA TERRON, MARIO. Referencia: BES-2015-073253 (2016-2019).

Dotación Adicional Ramón y Cajal

FERNANDEZ DOMINGUEZ, ANTONIO ISAAC (2014-2018).

VALLE REBOUL, ELENA DEL. (2014-2018).

TESIS DOCTORALES 2016

Tesis leídas	Dirigidas	Tutorizadas
10	6	4

TESIS ORDENADAS POR PROGRAMA DE DOCTORADO

Programa de Doctorado: Biofísica (1)

Dynamics of gene expression in the genotype-phenotype map / Bajic, Djordje

Dirigida por: Poyatos Adeva, Juan Fernando

Tutorizada por: Velasco, Enrique

Desarrollada en: Instituto Universitario de Ciencia de Materiales "Nicolás Cabrera"

Programa de Doctorado: Física de la Materia Condensada y Nanotecnología (9)

Characterizing Real-life Graphene through the Latest First-principles Methodological Developments / Rodrigo Insausti, Lucía

Dirigida por: Pérez Pérez, Rubén

Dynamics of Polariton Wave Packets / Colas, David

Dirigida por: Laussy, Fabrice P.

Generation of non classical states of light / Sánchez Muñoz, Carlos

Dirigida por: Tejedor, Carlos ; Laussy, Fabrice Pierre

Modelling Simple and Complex Fluids under Confinement / Bores Quijano, Cecilia

Dirigida por: Lomba García, Enrique

Tutorizada por: Velasco Caravaca, Enrique

Desarrollada en: CSIC. Instituto de Química Física "Rocasolano"

Phonons and electrons in 2d materials and layered structures / Amorim, Bruno

Dirigida por: Peres, Nuno ; Guinea López, Francisco

Tutorizada por: Gómez Santos, Guillermo

Reaching Quantum Polaritons / Silva Fernández, Blanca

Dirigida por: Laussy, Fabrice Pierre

Reverse Monte Carlo modeling and Monte Carlo simulations of adsorption processes on zeolites / Sánchez Gil, Vicente

Dirigida por: González Noya, Eva; Guil Pinto, José María.

Tutorizada por: Velasco Caravaca, Enrique

Desarrollada en: CSIC. Instituto de Química Física "Rocasolano"

Scattering and topological properties of driven-dissipative quantum fluids. / Berceanu, Andrei Ciprian

Dirigida por: Marchetti, Francesca Maria

Theoretical description of wave propagation in magnetoplasmonic nanostructures / Caballero García, Blanca

Dirigida por: García Martín, Antonio ; Cuevas Rodríguez, Juan Carlos