

A photograph of a laboratory setting where a person in a white lab coat and blue gloves is using a pipette to transfer liquid into small vials. A pink rack holds several vials.

MEMORIA DE INVESTIGACIÓN 2024

A close-up photograph of a CD or DVD surface, showing vibrant, concentric rainbow-colored light patterns.

FÍSICA TEÓRICA DE LA MATERIA CONDENSADA





**MEMORIA DE INVESTIGACIÓN
ELABORADA POR LA
BIBLIOTECA DE CIENCIAS
“FERNANDO GONZÁLEZ BERNÁLDEZ”**



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MEMORIA DE INVESTIGACIÓN DEL DEPARTAMENTO DE FÍSICA DE LA MATERIA CONDENSADA 2024

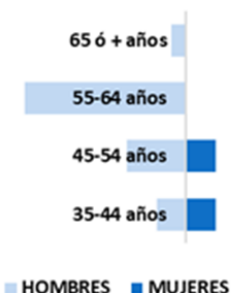
El presente documento tiene como finalidad compilar la actividad investigadora, desarrollada durante el año 2024 por el personal docente e investigador de este Departamento.

Esta memoria recoge de manera sistemática las publicaciones científicas, las tesis doctorales dirigidas y tutorizadas por el PDI del Departamento, los proyectos de investigación en los que participa, ayudas individuales, patentes, sexenios, empresas basadas en el conocimiento activas, premios y los grupos de investigación reconocidos por la UAM en los que el Departamento tiene representación.

La elaboración de este documento se ha basado en los perfiles individuales del PDI disponibles en el Portal de Producción Científica de la UAM. La Biblioteca actualiza y completa dichos perfiles individuales una vez verificada esta información.

Expresamos nuestro más sincero agradecimiento por sus valiosas aportaciones, que han permitido consolidar esta memoria, a los integrantes del departamento, coordinadores de los grupos de investigación y al Decanato de la Facultad.

INVESTIGADORES	491 PDI PERMANENTE	Edad y Género del PDI 65 ó + años 55-64 años 45-54 años 35-44 años HOMBRES MUJERES	127 CATEDRÁTICOS
	619 PDI NO PERMANENTE		253 TITULARES
			111 CONTR. DOCT. Y LABORALES PERMANENTES
	97 NUEVOS SEXENIOS DE INVESTIGACIÓN CONCEDIDOS EN 2024		
PROYECTOS	FINANCIACIÓN PRIVADA 15% PÚBLICA 85%	529 PROYECTOS VIGENTES	ENTIDADES FINANCIADORAS UE 13% CAM 4% UAM 1% OTRAS 3% MINISTERIO 79%
	TRANSFERENCIA	27 PATENTES	8 EMPRESAS BASADAS EN EL CONOCIMIENTO ACTIVAS
TESIS DOCTORALES	228 TESIS DOCTORALES	FACULTAD DE CIENCIAS 2024	
PUBLICACIONES	COLABORACIÓN EN LA AUTORIA DE ARTÍCULOS UAM 10% NACIONAL 22% INTERNACIONAL 68%	1.556 PUBLICACIONES	64% ARTÍCULOS Q1 (JCR)
		1.400 ARTÍCULOS	

INVESTIGADORES	22 PDI PERMANENTE	Edad y género del PDI  65 ó + años 55-64 años 45-54 años 35-44 años HOMBRES MUJERES	5 CATEDRÁTICOS 10 TITULARES 7 CONTR. DOCTORES Y LABORAL PERM.
	40 PDI NO PERMANENTE	13 PDI Doctor no permanente 24 Personal Investigador en Formación 3 Profesores Eméritos	
	8 NUEVOS SEXENIOS DE INVESTIGACIÓN CONCEDIDOS EN 2024		
PROYECTOS	37 PROYECTOS I+D+I VIGENTES	10 PATENTES	
TESIS DOCTORALES	13 TESIS DOCTORALES	DEPARTAMENTO DE FÍSICA TEÓRICA DE LA MATERIA CONDENSADA 2024	
PUBLICACIONES	COLABORACIÓN EN LA AUTORÍA DE ARTÍCULOS  UAM 19% NACIONAL 9% INTERNACIONAL 72%	96 PUBLICACIONES 94 ARTÍCULOS	 59% ARTÍCULOS Q1 (JCR)



METODOLOGÍA



DESTACADOS: TABLAS Y GRÁFICOS



**PUBLICACIONES: ARTÍCULOS
OTRAS PUBLICACIONES**



TESIS DOCTORALES



PROYECTOS DE INVESTIGACIÓN Y CONTRATOS CON EMPRESAS



AYUDAS INDIVIDUALES



GRUPOS DE INVESTIGACIÓN



PATENTES



EMPRESAS BASADAS EN EL CONOCIMIENTO (EBC) ACTIVAS



SEXENIOS



PREMIOS



PDI DE LA FACULTAD Y ENLACE AL PPEC



MEMORIA EN FICHAS

1. TABLAS

1.1. Tabla de Publicaciones

AÑO	Total publicaciones	Nº Artículos	Q1	% Q1	Publicaciones/PDI permanente
Departamento de Física Teórica de la Materia Condensada					
2024	96	94	55	58,51%	4,36
2023	76	73	45	62,00%	4,00
2022	63	60	31	51,67%	3,15
2021	91	89	52	58,43%	5,06
2020	79	77	46	59,74%	4,16
FACULTAD DE CIENCIAS					
2024	1.556	1.400	900	64,29%	3,17
2023	1.428	1.232	810	65,75%	2,96
2022	1.322	1.135	669	58,94%	2,70
2021	1.722	1.554	1.033	66,47%	3,51
2020	1.680	1.524	926	60,76%	3,40

1.2. Tabla de Proyectos de Investigación y Contratos con empresas

DEPARTAMENTO	VIGENTES	TIPO DE FINANCIACION		ENTIDADES FINANCIADORAS				
		PÚBLICA	PRIVADA	MINISTERIO	UE	CAM	UAM	OTRAS
FTMC	37	37	1	27	8	2	0	0
FACULTAD	529	450	79	356	58	15	5	15

1.3. Tabla de Tesis Doctorales

DEPARTAMENTO	2024				
	TESIS DEFENDIDAS			DOCTORANDOS	
	Total	Dirigidas	Tutorizadas	HOMBRES	MUJERES
FTMC	13	4	9	10	3
FACULTAD	228	89	139	120	108

2. METODOLOGÍA Y FUENTES

La Biblioteca de Ciencias elabora la Memoria de Investigación de la Facultad de Ciencias y sus departamentos a partir de la recopilación y análisis de datos provenientes de diversas fuentes, que se relacionan en el apartado Fuentes. El [Portal de Producción Científica](#) (PPC), en el que está incluido todo el personal docente e investigador permanente y la mayoría del PDI no permanente, es nuestro principal proveedor de datos.

Una vez recopilada la información, llevamos a cabo un proceso de verificación y depuración de los datos, con la que generamos una primera versión de la memoria. Esta versión se envió a los directores de los 17 departamentos para su revisión en mayo de 2025. Los departamentos nos envían modificaciones, correcciones o nuevas incorporaciones que son revisadas y validadas, añadiéndose a la versión final, junto con las nuevas publicaciones detectadas por la Biblioteca. Todas las modificaciones recogidas en esta versión final se incorporan al PPC, de modo que se mejora la calidad y actualización de los perfiles individuales del PDI de la Facultad.

Finalizada la revisión, analizamos los datos relativos a indicios de calidad de los artículos, incorporándolos al presente documento.

La biblioteca deposita de forma sistemática en el repositorio institucional [Biblos-e Archivo](#) los artículos de nuestro PDI firmados como UAM, atendiendo a los derechos de propiedad intelectual vigentes. El dato de acceso abierto en repositorio institucional corresponde a 27-07-2025, aunque la biblioteca continuará trabajando en su incorporación.

Al comienzo, se presentan fichas resumen tanto de la Facultad como del departamento, que recogen los principales logros y cifras más relevantes de esta memoria.

FUENTES UTILIZADAS

- Para las publicaciones
 - Portal de Producción Científica de la UAM [IMarina].
 - Revisión facilitada por los departamentos.
 - Bases de datos: WoS, Scopus, Pubmed y Dialnet.
 - Publicaciones de investigadores no incluidos en el PPC, a solicitud de algunos departamentos.
 - Repositorio institucional de la UAM [Biblos-e Archivo](#), para acompañar al artículo del enlace permanente (handle), que nos sirve para confirmar que el artículo final o la versión aceptada está en acceso abierto.
- Para los indicios de calidad.
 - Se utilizan los indicadores de factor de impacto de las publicaciones JCR (WoS) del año 2024, la versión cerrada a septiembre de 2025.
- Para los investigadores
 - Portal de Producción Científica de la UAM, con datos procedentes de la base de datos HOMINIS.
 - La identificación del PDI permanente se ha hecho atendiendo a las categorías seleccionadas por el Decanato de la Facultad de Ciencias: Catedrático, Profesor Titular, Profesor Contratado Doctor y Personal Laboral Permanente.
 - Para PDI no permanente, Doctor y en Formación, se ha utilizado la información procedente del Portal de Producción Científica. Organizado de la siguiente manera:
 - PDI Doctor no permanente:
 - Profesor Contratado Doctor Interino.
 - Profesor Ayudante Doctor.
 - Ramón y Cajal.

- Otros Contratos Postdoctorales: Atracción de Talento modalidades CAM 1 y 2, postdoc CAM, Juan de la Cierva (incorporación/formación), beca César Nombela.
 - Personal Investigador en Formación (PIF):
 - Contratados predoctorales (Ley de la Ciencia artículo 21): FPI, FPU, FPI-UAM.
 - Otros contratados predoctorales: predoctorales CAM, Ayudantes de Investigación.
 - Para los Profesores eméritos se ha utilizado la información procedente del Vicerrectorado de Personal Docente e Investigador.
 - Incorporación, a solicitud de los departamentos, de PIF no incluidos en el PPC.
 - En caso de investigadores con múltiples categorías laborales durante el año, se ha considerado aquella en la que hayan permanecido más tiempo.
- Para los Proyectos de investigación y contratos con empresas:
 - Portal de Producción Científica de la UAM, que recoge la información facilitada por el Servicio de Investigación.
 - Boletines oficiales: BOE, BOCAM.
 - Información complementaria revisada por los departamentos.
 - Los contratos con empresas son facilitados por los departamentos.
- Para las Tesis Doctorales:
 - Escuela de Doctorado.
 - Repositorio institucional.
 - Revisión facilitada por los departamentos, para tesis no leídas en la UAM.
- Para los Grupos de Investigación:
 - Página Web de la UAM.
 - Revisión facilitada por los coordinadores de los grupos de investigación.
- Para las Patentes, Empresas Basadas en el Conocimiento y Sexenios:
 - Portal de Producción Científica de la UAM.
 - Servicio de gestión integral de la investigación, Área de Investigación y Transferencia.
 - Revisión facilitada por los departamentos.

3.PUBLICACIONES

El Departamento ha presentado 96 publicaciones, de las que 94 son artículos científicos. De éstos, un total de 55 se han publicado en revistas del primer cuartil, que corresponde al 59% de los artículos publicados. El 6% de las publicaciones de la Facultad de Ciencias han sido firmadas por PDI del Departamento. De estas publicaciones están depositadas en el Repositorio Institucional el 59%.

Dónde publica el Departamento

Las revistas en que se han publicado un mayor número de artículos son:

TÍTULO DE REVISTAS	Nº ART.	CUARTILES
PHYSICAL REVIEW B	18	Q2
ACS NANO	6	Q1
PHYSICAL REVIEW LETTERS	6	Q1
PHYSICAL REVIEW RESEARCH	6	Q1
PHYSICAL REVIEW A	5	Q2

Relación de Publicaciones de la Facultad, ordenadas alfabéticamente por autor

Leyenda de cuartiles de JCR 2023 [Q1] [Q2] [Q3] [Q4]

Artículos

1. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; ...; ATLAS Collaboration (2024). Search for R-parity violating supersymmetric decays of the top squark to a b-jet and a lepton in $\sqrt{s}=13$ TeV pp collisions with the ATLAS detector. Physical Review D. 110 (9): 092004. DOI: 10.1103/PhysRevD.110.092004 [Q1]
<http://hdl.handle.net/10486/720554>

2. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, MA.; Terrón, J.; ...; The Atlas collaboration. (2024). Search for neutral long-lived particles that decay into displaced jets in the ATLAS calorimeter in association with leptons or jets using pp collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics. 2024 (11): 036. DOI: 10.1007/JHEP11(2024)036 [Q1]
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3. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; ATLAS Collaboration (2024). Searches for exclusive Higgs boson decays into $D^*\gamma$ and Z boson decays into $D0\gamma$ and $Ks0\gamma$ in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. Physics Letters B. 855: 138762. DOI: 10.1016/j.physletb.2024.138762 [Q1]
<http://hdl.handle.net/10486/717017>

4. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; ATLAS Collaboration (2024). Search for the $Z\gamma$ decay mode of new high-mass resonances in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. Physics Letters B. 848: 138394. DOI: 10.1016/j.physletb.2023.138394 [Q1]
<http://hdl.handle.net/10486/716718>

5. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS collaboration. (2024). Interpretations of the ATLAS measurements of Higgs boson production and decay rates and differential cross-sections in pp collisions at $\sqrt{s} = 13$ TeV. *Journal of High Energy Physics*. 2024 (11): 97. DOI: 10.1007/JHEP11(2024)097 [Q1]
<http://hdl.handle.net/10486/718988>
6. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; Atlas Collaboration. (2024). Measurement of differential cross-sections in $t\bar{t}$ and $t\bar{t} + \text{jets}$ production in the lepton+jets final state in pp collisions at $\sqrt{s} = 13$ TeV using 140 fb⁻¹ of ATLAS data. *Journal of High Energy Physics*. 2024 (8): 182. DOI: 10.1007/JHEP08(2024)182 [Q1]
<http://hdl.handle.net/10486/718841>
7. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; ATLAS Collaboration. (2024). Measurement of the total and differential cross-sections of $t\bar{t}W$ production in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (5): 131. DOI: 10.1007/JHEP05(2024)131 [Q1]
<http://hdl.handle.net/10486/718854>
8. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Cueto, A.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; The Atlas collaboration. (2024). A search for R-parity-violating supersymmetry in final states containing many jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (5): 3. DOI: 10.1007/JHEP05(2024)003 [Q1]
<http://hdl.handle.net/10486/718833>
9. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Del Peso, J.; Glasman, C.; Príncipe Martín, M.A.; Terrón, J.; ...; ATLAS Collaboration (2024). Search for top-philic heavy resonances in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *European Physical Journal C*. 84 (2): 157. DOI: 10.1140/epjc/s10052-023-12318-9 [Q2]
<http://hdl.handle.net/10486/716339>
10. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ... ; ATLAS Collaboration (2024). Measurement of single top-quark production in association with a W boson in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Physical Review D*. 110 (7): 072010. DOI: 10.1103/PhysRevD.110.072010 [Q1]
<http://hdl.handle.net/10486/718065>
11. Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ... ; ATLAS Collaboration (2024). Jet radius dependence of dijet momentum balance and suppression in Pb plus Pb collisions at 5.02 TeV with the ATLAS detector. *Physical Review C*. 110 (5): 054912. DOI: 10.1103/PhysRevC.110.054912 [Q2]
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- 12.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Sensor response and radiation damage effects for 3D pixels in the ATLAS IBL detector. *Journal of Instrumentation*. 19 (10): P10008. DOI: 10.1088/1748-0221/19/10/P10008 [Q4]
<http://hdl.handle.net/10486/718284>
- 13.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Accuracy versus precision in boosted top tagging with the ATLAS detector. *Journal of Instrumentation*. 19 (8): P08018. DOI: 10.1088/1748-0221/19/08/P08018 [Q4]
<http://hdl.handle.net/10486/717613>
- 14.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Beam-induced backgrounds measured in the ATLAS detector during local gas injection into the LHC beam vacuum. *Journal of Instrumentation*. 19 (6): P06014. DOI: 10.1088/1748-0221/19/06/P06014 [Q4]
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<http://hdl.handle.net/10486/716785>
- 16.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Combination of searches for Higgs boson decays into a photon and a massless dark photon using pp collisions at $s=13$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (8): 153. DOI: 10.1007/JHEP08(2024)153 [Q1]
- 17.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Combination of Searches for Higgs Boson Pair Production in pp Collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Physical Review Letters*. 133 (10): 101801. DOI: 10.1103/PhysRevLett.133.101801 [Q1]
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<http://hdl.handle.net/10486/720442>

- 19.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Search for a light CP-odd Higgs boson decaying into a pair of τ -leptons in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Journal Of High Energy Physics*. 2024 (12): 126. DOI: 10.1007/JHEP12(2024)126 [Q1]
- 20.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Search for supersymmetry using vector boson fusion signatures and missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Journal Of High Energy Physics*. 2024 (12): 116. DOI: 10.1007/JHEP12(2024)116 [Q1]
- 21.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Measurement of vector boson production cross sections and their ratios using pp collisions at $\sqrt{s}=13.6$ TeV with the ATLAS detector. *Physics Letters B*. 854: 138725. DOI: 10.1016/j.physletb.2024.138725 [Q1]
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- 22.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Measurements of electroweak $W\pm Z$ boson pair production in association with two jets in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (6): 192. DOI: 10.1007/JHEP06(2024)192 [Q1]
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- 23.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Measurements of inclusive and differential cross-sections of $t(t)$ over-bar production in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (10): 191. DOI: 10.1007/JHEP10(2024)191 [Q1]
- 24.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Measurements of the production cross-section for a Z boson in association with b- or c-jets in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. *European Physical Journal C*. 84 (9): 984. DOI: 10.1140/epjc/s10052-024-13159-w [Q2]
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- 25.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS Collaboration (2024). Observation of $t\bar{t}$ production in the lepton plus jets and dilepton channels in p plus Pb collisions at $\sqrt{s_{NN}}=8.16$ TeV with the ATLAS detector. *Journal of High Energy Physics*. 2024 (11): 101. DOI: 10.1007/JHEP11(2024)101 [Q1]
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- 26.** Aad, G.; ...; Álvarez Estévez, M.; Barreiro, F.; Batlamous, S.; Cueto, A.; Del Peso, J.; Glasman, C.; Pascual Domínguez, L.; Príncipe Martín, M.A.; Terrón, J.; ...; The ATLAS

Collaboration (2024). Precise test of lepton flavour universality in W-boson decays into muons and electrons in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector. European Physical Journal C. 84 (10): 993. DOI: 10.1140/epjc/s10052-024-13070-4 [Q2]
<http://hdl.handle.net/10486/720415>

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- 383.** Tumasyan, A.; ...; Fernández de Trocóniz, J.; ...CMS Collaboration (2024). Measurement of the production cross section for a W boson in association with a charm quark in proton-proton collisions at $\sqrt{s}=13$ TeV. *European Physical Journal C*. 84 (1): 27. DOI: 10.1140/epjc/s10052-023-12258-4 [Q2]
- 384.** Tumasyan, A.; ...; Fernández de Trocóniz, J.; ...; CMS Collaboration (2024). Measurement of simplified template cross sections of the Higgs boson produced in association with W or Z bosons in the $H \rightarrow b\bar{b}$ decay channel in proton-proton collisions at $\sqrt{s}=13$ TeV. *Physical Review D*. 109 (9): 092011. DOI: 10.1103/PhysRevD.109.092011 [Q1]
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- 392.** Ulibarrena, A.; Sopena, A.; Brooks, R.; Centeno, D.; Ho, J.; Sierra, G.; Fedrizzi, A. (2024). Photonic implementation of the quantum Morra game. *Physical Review Research.* 6 (2): 023248. DOI: 10.1103/PhysRevResearch.6.023248 [Q1]
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- 393.** Vincenzi, M.; ...; García-Bellido, J.; ...; DES Collaboration (2024). The Dark Energy Survey Supernova Program: cosmological analysis and systematic uncertainties. *Astrophysical Journal.* 975 (1): 86-86. DOI: 10.3847/1538-4357/ad5e6c [Q1]
- 394.** Vos-Gines, B.; Ávila, S.; González-Pérez, V.; Yepes, G. (2024). Improving and extending non-Poissonian distributions for satellite galaxies sampling in HOD: applications to eBOSS ELGs. *Monthly Notices of the Royal Astronomical Society.* 530 (3): 3458-3476. DOI: 10.1093/mnras/stae1096 [Q1]
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OTRAS PUBLICACIONES

Corrección

1. Dirnberger, F.; Quan, J.; Bushati, R.; Diederich, G.M.; Florian, M.; Klein, J.; Mosina, K.; Sofer, Z.; Xu, X.; Kamra, A.; García-Vidal, F.J.; Alu, A.; Menon, V.M. (2024). Magneto-optics in a van der Waals magnet tuned by self-hybridized polaritons (vol 620, pg 533, 2023). *Nature*. 629 (8014): E16. DOI: 10.1038/s41586-024-07544-4

Letters

2. Pantazopoulos, PA.; Feist, J.; Kamra, A.; Garcia-Vidal, FJ. (2024). Electrostatic nature of cavity-mediated interactions between low-energy matter excitations. Physical Review B. 109 (20): L201408. DOI: 10.1103/PhysRevB.109.L201408

4.TESIS DOCTORALES

En 2024, se han defendido 13 tesis doctorales en el departamento

Plan	Tesis defendidas
Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica	13
Total	13

Relación de Tesis doctorales - Ordenación alfabética por título

1. Analysis of the structure and dynamics of polaritons through multidimensional spectroscopy

Autoría: Gallego Valencia, Daniela

Fecha de lectura: 05/08/2024

Dirigida por: Sanz Vicario, José María; Feist, Johannes Maximilian

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/716690>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

2. Beyond the surface: From aqueous phase separation to membrane fusion in vesicles

Autoría: Tinao Nieto, Berta

Fecha de lectura: 14/06/2024

Dirigida por: Rodríguez Arriaga, Laura; Aragonés Gómez, Juan Luis

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/715173>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

3. Bridging multiscale modeling of biomolecules and experiments through a user-friendly computational platform

Autoría: Ibáñez Freire, Pablo

Fecha de lectura: 20/09/2024

Dirigida por: Delgado Buscalioni, Rafael; de Pablo Gómez, Pedro José

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/716305>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

4. Caracterización a nivel de moléculas individuales de las propiedades mecánicas y plegamiento de ARN de cadena sencilla

Autoría: Rodríguez Pulido, Carlos

Fecha de lectura: 16/09/2024

Dirigida por: Ibarra Urruela, Borja; Bocanegra Rojo, Rebeca

Tutorizada por: Delgado Buscalioni, Rafael

Desarrollada en: Instituto Madrileño de Estudios Avanzados en Nanociencia

<http://hdl.handle.net/10486/716099>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

5. Chaos and thermalization in collective and strongly correlated quantum systems

Autoría: López Corps, Ángel

Fecha de lectura: 28/10/2024

Dirigida por: Relaño Pérez, Armando; Molina Fernández, Rafael Alejandro

Tutorizada por: Marchetti, Francesca María

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/717887>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

6. Electron transport in magnetic van der Waals materials and their heterostructures

Autoría: Martín Pérez, Lucía

Fecha de lectura: 15/04/2024

Dirigida por: Burzurí Linares, Enrique

Tutorizada por: Agrait de la Puente, Mario Nicolás

Desarrollada en: Instituto Madrileño de Estudios Avanzados en Nanociencia

<http://hdl.handle.net/10486/714985>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

7. Empaquetamientos densos y comportamiento de fases de arcos circulares duros y casquetes esféricos duros

Autoría: Ramírez González, Juan Pedro

Fecha de lectura:

15/03/2024

Dirigida por: Cinacchi, Giorgio

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/713762>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

8. Espectrometría de masas nanomecánica de alta eficiencia para la caracterización de poblaciones bacterianas

Autoría: Sanz Jiménez, Adrián

Fecha de lectura: 25/11/2024

Dirigida por: Tamayo de Miguel, Francisco Javier; Malvar Vidal, Óscar

Tutorizada por: Gómez Herrero, Julio

Desarrollada en: Instituto de Micro y Nanotecnología

<http://hdl.handle.net/10486/718202>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física de la Materia Condensada; Departamento de Física Teórica de la Materia Condensada

9. Fractionalized topological phases in strongly correlated materials with spin-orbit coupling

Autoría: Fernández López, Manuel

Fecha de lectura: 03/10/2024

Dirigida por: Merino Troncoso, Jaime

Desarrollada en: Departamento de Física Teórica de la Materia Condensada

<http://hdl.handle.net/10486/717886>

Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica

Departamento de Física Teórica de la Materia Condensada

10. Homology modeling and molecular dynamics techniques in the study of the functionality of GSDMB and the cohesin complex

Autoría: Ros Pardo, David

Fecha de lectura: 25/11/2024

Dirigida por: Marcos Alcalde, Íñigo; Gómez Puertas, Paulino
Tutorizada por: López Corcuera, Beatriz Fuensanta
Desarrollada en: Departamento de Física Teórica de la Materia Condensada
<http://hdl.handle.net/10486/718176>
Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica
Departamento de Física Teórica de la Materia Condensada

11. Light-matter interaction in photonic Weyl systems

Autoría: García Elcano, Iñaki **Fecha de lectura:** 08/02/2024
Dirigida por: Bravo Abad, Jorge; González Tudela, Alejandro
Desarrollada en: Departamento de Física Teórica de la Materia Condensada
<http://hdl.handle.net/10486/713626>
Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica
Departamento de Física Teórica de la Materia Condensada

12. Tomographic characterization of quantum non-demolition measurements in superconducting circuits

Autoría: Pereira Valenzuela, Luciano Iván **Fecha de lectura:** 15/03/2024
Dirigida por: Ramos del Río, Tomás; García Ripoll, Juan José
Tutorizada por: Feist, Johannes Maximilian
Desarrollada en: Departamento de Física Teórica de la Materia Condensada
<http://hdl.handle.net/10486/713777>
Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica
Departamento de Física Teórica de la Materia Condensada

13. Topological Nanophotonics: Symmetry-protected states of arrays of plasmonic nanoparticles

Autoría: Buendía Gallego, Álvaro **Fecha de lectura:** 12/12/2024
Dirigida por: Sánchez Gil, José Antonio; Giannini, Vincenzo
Tutorizada por: Fernández Domínguez, Antonio Isaac
Desarrollada en: Consejo Superior de Investigaciones Científicas
<http://hdl.handle.net/10486/718473>
Programa de Doctorado en Física de la Materia Condensada, Nanociencia y Biofísica
Departamento de Física Teórica de la Materia Condensada

5.PROYECTOS DE INVESTIGACIÓN Y CONTRATOS CON EMPRESAS

El Departamento para 2024 ha tenido vigentes 37 proyectos de investigación.

Relación de Proyectos de Investigación vigentes en 2024

1. Acelerando la transición digital con nanofotónica cuántica: plataformas

Referencia: TED2021-130552B-C21 **Vigencia:** 2022/2024
Investigadores: Sánchez Muñoz, Carlos; Martín Cano, Diego (IP); Fernández Domínguez, Antonio Isaac (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

2. Andreev qubits for scalable quantum computation

Referencia: GA 828948 **Vigencia:** 2019/2024
Investigadores: Levy-Yeyati Mizrahi, Alfredo (IP)

Entidades participantes: Budapesti Muszaki es Gazdasagtudomanyi Egyetem; Kobenhavns Universitet; Consiglio Nazionale delle Ricerche; Universidad Autónoma de Madrid; Technische Universiteit Delft; Chalmers Tekniska Hogskola Ab; ; FET-Open Challenging Current Thinking; FET Open; Universidad Autónoma de Madrid; Universitat Basel; Commissariat a l'Energie Atomique et aux Energies Alternatives
Financiador: H2020. Excellent Science - Future and Emerging Technologies (FET)

3. Canalización de energía en semiconductores nanoestructurados

Referencia: PID2022-141579OB-I00 **Vigencia:** 2023/2026
Investigadores: Frising, Michel; Prins, Ferry (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

4. Conexión entre óptica cuántica y nanofotónica

Referencia: EUR2023-143478 **Vigencia:** 2023/2025
Investigadores: Feist, Johannes Maximilian (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

5. Correlaciones cuánticas e interferencia de fotones interactuantes en estructuras materia-luz bidimensionales

Referencia: PID2020-113415RB-C22 **Vigencia:** 2021/2024
Investigadores: Levinsen, Jepser; Parish, Meera; Tiene, Antonio; Marchetti, Francesca María (IP); Valle Reboul, Elena Del (IP); Keeling, Jonathan Marc James
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

6. Corrientes de calor en la escala nanométrica: fluctuaciones y efectos no lineales

Referencia: PID2022-142911NB-I00 **Vigencia:** 2023/2025
Investigadores: Balduque Picazo, José; Sánchez Rodrigo, Rafael (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

7. Electron Quantum Optics with Superconducting Devices

Referencia: 2019-T1/IND-14088 **Vigencia:** 2020/2024
Investigadores: Burset Atienza, Pablo (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Comunidad de Madrid. Captación de Talentos

8. Electrónica coherente en dispositivos superconductores

Referencia: PID2020-117992GA-I00 **Vigencia:** 2021/2025
Investigadores: Flindt, Christian; Sothmann, Bjorn; Moskalets, Mykhailo; Tanaka, Yukio; Burset Atienza, Pablo (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

9. Electrónica cuántica coherente superconductora

Referencia: CNS2022-135950 **Vigencia:** 2023/2025

Investigadores: Burset Atienza, Pablo (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

10. Estudios computacionales de materiales biomoleculares y bioinspirados

Referencia: PID2021-125604NB-I00 **Vigencia:** 2022/2025
Investigadores: Flores Sintas, Fernando; Zotti, Linda Ángela (IP); Ortega Mateo, José (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

11. Fundamentos microscópicos del microscopio de fuerzas atómicas y microbalanzas de cuarzo para sensar biomoléculas

Referencia: PID2020-117080RB-C51 **Vigencia:** 2021/2024
Investigadores: Palacios Alonso, Pablo; Ibañez Freire, Pablo; Tarazona Lafarga, Pedro José (IP); Delgado Buscalioni, Rafael (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

12. Future data storage using colloidal memory technology - FASTCOMET

Referencia: GA 101130615 **Vigencia:** 2023/2026
Investigadores: Marques Ponce, Manuel Ignacio; Delgado Buscalioni, Rafael (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Comisión Europea

13. Hacia un nuevo qubit de shiba basado en puntos cuánticos híbridos superconductor-semiconductor

Referencia: TED2021-130292B-C41 **Vigencia:** 2022/2024
Investigadores: Gómez Gutiérrez, Mario; Lee, Eduardo Jian Hua (IP); Levy-Yeyati Mizrahi, Alfredo (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

14. Herramientas de simulación y aprendizaje automático para la caracterización de la estructura y la respuesta mecánica de materiales avanzados y biomoléculas

Referencia: PID2023-149150OB-I00 **Vigencia:** 2024/-
Investigadores: Pérez Pérez, Rubén (IP); Assenza, Salvatore (IP)
Entidades participantes: Universidad Autónoma de Madrid; Facultad de Ciencias.
Financiador: Agencia Estatal de Investigación (AEI)

15. Identificación química y control de las propiedades electrónicas y mecánicas de sistemas moleculares mediante microscopías de proximidad y aprendizaje automático

Referencia: PID2020-115864RB-I00 **Vigencia:** 2021/2024
Investigadores: Ventura Macías, Miguel E.; Pou Bell, Pablo (IP); Pérez Pérez, Rubén (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

16. Ingeniera química del transporte de calor en contactos moleculares: del régimen balístico hasta el régimen difusivo.

Referencia: PID2020-113722RJ-I00

Vigencia: 2021/2024

Investigadores: Cuevas Rodríguez, Juan Carlos; Vilhena Albuquerque D'orey, José Guilherme (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

17. Ingeniería cuántica de luz y materia en la nanoescala

Referencia: PID2021-126964OB-I00

Vigencia: 2022/2025

Investigadores: Martín Cano, Diego (IP); Fernández Domínguez, Antonio Isaac (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

18. Manipular la materia mediante las fluctuaciones del vacío

Referencia: PID2021-125894NB-I00

Vigencia: 2022/2025

Investigadores: Lednev, Maksim; Moreno Soriano, Esteban; Feist, Johannes Maximilian (IP); García Vidal, Fco José (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

19. Materiales para la información cuántica basados en excitones en semiconductores

Referencia: PID2020-113445GB-I00

Vigencia: 2021/2024

Investigadores: Klemmt, Sebastian; Hofflin, Sven; Potemski, Marek; Yulin, Alexey; Voronova, Nina; Tejedor De Paz, Carlos; Van Der Meulen, Herko Piet (IP); Martín Fernandez, María Dolores (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

20. Materiales tisulares basados en vesículas: respuestas colectivas emergentes bajo campos eléctricos

Referencia: CNS2023-145460

Vigencia: 2024/2026

Investigadores: Rodríguez Arriaga, Laura (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

21. Mecánica del calor: uniendo transporte de calor y fricción en la nanoescala

Referencia: TED2021-132219A-I00

Vigencia: 2022/2024

Investigadores: Aldave Valle, Diego Alonso; Cuadra Veliz, Jorge; Gómez Herrero, Julio; Gómez-Navarro González, Cristina; Pérez Pérez, Rubén; Vilhena Albuquerque D'orey, José Guilherme (IP); Ares García, Pablo (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

22. Medios con variación temporal para electrodinámica clásica y cuántica

Referencia: PID2022-141036NA-I00

Vigencia: 2023/2026

Investigadores: Echave-Sustaeta Osuna, Jaime; Arroyo Huidobro, Paloma (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

23. Micro-Robots Autónomos con Capacidad de Detección

Referencia: CNS2023-145447

Vigencia: 2024/2026

Investigadores: Aragonés Gómez, Juan Luis (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

24. Mid-infrared quantum technology for sensing

Referencia: GA101070700

Vigencia: 2022/2025

Investigadores: Fernández Domínguez, Antonio Isaac (IP); Feist, Johannes Maximilian (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Comisión Europea

25. Nanofotónica para computación cuántica

Referencia: Y2020/TCS-6545 (NanoQuCo-CM) Grupo: QNanoLight **Vigencia:** 2021/2024

Investigadores: García Vidal, Fco José (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Comunidad de Madrid

26. NOTsoQUANTUM: Realistic simulations of polaritonic chemistry

Referencia: GA101029384

Vigencia: 2022/2025

Investigadores: Feist, Johannes Maximilian (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: European Research Council (ERC). H2020

27. Nuevas aplicaciones con fuentes extremas de luz

Referencia: CNS2023-145254

Vigencia: 2024/2026

Investigadores: Feist, Johannes Maximilian (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

28. Nuevos conceptos y métodos para la comprensión y caracterización de materia cuántica topológica fuertemente interactuante

Referencia: PID2022-139995NB-I00

Vigencia: 2023/2026

Investigadores: García Elcano, Iñaki; Fernández López, Manuel; Bravo Abad, Jorge (IP); Merino Troncoso, Jaime (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

29. Simulación computacional de biomoléculas y materia blanda

Referencia: UAM2023-UAM/203

Vigencia: 2023/2024

Investigadores: Ortega Mateo, José (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: FUAM

30. Simulación multiescala de materiales porosos avanzados

Referencia: TED2021-129886B-C44

Vigencia: 2022/2024

Investigadores: Tarazona Lafarga, Pedro José (IP); Velasco Caravaca, Enrique (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

31. Strong-coupling-enhanced nanoparticle array organic light emitting diode - SCOLED

Referencia: GA 101098813 **Vigencia:** 2023/2025
Investigadores: Feist, Johannes Maximilian (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Comisión Europea

32. Superando la difusión: Transporte dinámico en medios complejos

Referencia: PID2022-143010NB-I00 **Vigencia:** 2023/2027
Investigadores: Geva, Galor; Llombart González, Pablo; Magrinya Aguilo, Paula; Tinao Nieto, Berta; Aragonés Gómez, Juan Luis (IP); Rodríguez Arriaga, Laura (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

33. Superconductividad en la nanoescala: dispositivos cuánticos de 0 a 2d

Referencia: PID2020-117671GB-I00 **Vigencia:** 2021/2024
Investigadores: González Sánchez, Celia; Moraes Oliveira, Gabriel; Ibabe Aviles, Ángel; Casal Iglesias, Ignacio; Lee, Eduardo Jian Hua (IP); Levy-Yeyati Mizrahi, Alfredo (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

34. Theoretical investigation of surface phonon polariton-based quantum photonic circuits

Referencia: GA 101067180 **Vigencia:** 2022/2024
Investigadores: Busche, Jacob (IP); Fernández Domínguez, Antonio Isaac (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Comisión Europea

35. TIME-Varying nanophotonics for new regimes of QED LIGHT-Matter interactions - TIMELIGHT

Referencia: GA 101115792 **Vigencia:** 2023/2028
Investigadores: Arroyo Huidobro, Paloma (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Comisión Europea

36. Transporte de calor y termoelectricidad en contactos moleculares

Referencia: PID2020-114880GB-I00 **Vigencia:** 2021/2024
Investigadores: Díez Pérez, Ismael; Pauly, Fabian; Calame, Michel; López Nebreda, Rubén; Agrait De La Puente, Mario Nicolas (IP); Cuevas Rodríguez, Juan Carlos (IP)
Entidades participantes: Universidad Autónoma de Madrid
Financiador: Agencia Estatal de Investigación (AEI)

37. Visualizing carrier interconversion in layered perovskites

Referencia: TED2021-131018B-C21 **Vigencia:** 2022/2024

Investigadores: Frising, Michel; Alcazar Cano, Nerea; Melendez Schofield, Marc; Prins, Ferry (IP); Delgado Buscalioni, Rafael (IP)

Entidades participantes: Universidad Autónoma de Madrid

Financiador: Agencia Estatal de Investigación (AEI)

6. AYUDAS INDIVIDUALES

Tipo de Ayuda	Número
Captación de talentos Comunidad de Madrid	2
Convenio UAM La Caixa - INPHINIT-IFIMAC	1
Doctorado Industrial 2022 CM.	1
FPI	10
FPI CM	2
Gestión de I+D asociada a las actividades de investigación	1
Ramón y Cajal	6
Research Cost - CIVIS 3i	1
Total general	24

7. GRUPOS DE INVESTIGACIÓN RECONOCIDOS POR LA UAM

Relación de Grupos de Investigación reconocidos por la UAM con participación de investigadores del departamento. Ordenados alfabéticamente por nombre del grupo

1. Ab initio simulations of electron-nuclear dynamics: from atoms to surfaces

Acrónimo: ATOSUR

Tipo de grupo: Grupo emergente

Líneas de investigación: Attosecond electron dynamics in atoms and small molecules. Molecular dynamics on surfaces: sticking and diffraction effects.

Participantes: Boll, Diego; René, Iván; Díaz Blanco, Cristina; Lara Astiaso, Manuel; Palacios Cañas, Alicia (coord.)

Departamentos con miembros del grupo: Física Teórica de la Materia Condensada; Química

URL: <http://atosur.qui.uam.es>

2. Inteligencia artificial para física de la materia condensada y ciencia de materiales

Acrónimo: AI4MAT

Tipo de grupo: Grupo consolidado

Participantes: Bravo Abad, Jorge

Departamentos con miembros del grupo: Física Teórica de la Materia Condensada

3. Microscopias de proximidad y nanomecánica

Acrónimo: SPMTH

Tipo de grupo: Grupo consolidado

Líneas de investigación: Desarrollo y aplicación de métodos de primeros principios (basados en el funcional de la densidad) y simulaciones de dinámica molecular para el estudio de problemas en Ciencia de Materiales, Nanotecnología y Biotecnología. Estos trabajos combinan cálculos de energías totales (para la determinación de fuerzas y estructuras) con métodos de funciones de Green de no-equilibrio para el cálculo del transporte electrónico.

Participantes: Ellner Martínez, Michael Eduardo; Ortega Cruz, María; Pérez Pérez, Rubén (coord.); Pou Bell, Pablo; Rodríguez Hermoso, Diego; Romero Muñiz, Carlos; Vilhena Albuquerque Dorey, José Guilherme

Departamentos con miembros del grupo: Física Teórica de la Materia Condensada

URL: <http://webs.ftmc.uam.es/spmth.group/>

4. Óptica cuántica en nanoestructuras semiconductoras

Acrónimo: Semicuam

Tipo de grupo: Grupo consolidado

Líneas de investigación: Semiconductores, óptica cuántica, información cuántica.

Participantes: Calleja Pardo, José Manuel; Díaz Camacho, Guillermo; Marchetti, Francesca María; Martín Fernández, María Dolores; Rozas Jiménez, Elena; Tejedor De Paz, Carlos; Van Der Meulen, Herko Piet; Viña Liste, Luis M. (coord.)

Departamentos con miembros del grupo: Física de Materiales; Física Teórica de la Materia Condensada

URL: <https://www.uam.es/UAM/Grupos-de-investigaci%C3%B3n/Ficha/1446755836600.htm?idGrupo=28&language=es&nombreGrupo=%C3%93PTICA%20CU%C3%81NTICA%20EN%20NANOESTRUCTURAS%20SEMICONDUCTORAS&site=UniversidadAutonomaMadrid>

5. Polaritónica molecular y óptica cuántica a escalas nanométricas / molecular polaritonics and subwavelength quantum optics.

Acrónimo: MMUSCLES

Tipo de grupo: Grupo emergente

Líneas de investigación: Polaritónica molecular Química polaritónica Nanofotónica cuántica Nanoplasmonica Ciencia de attosegundos

Participantes: Feist, Johannes Maximilian

Departamentos con miembros del grupo: Física Teórica de la Materia Condensada

8.PATENTES

A computer implemented method for identifying a molecule from atomic force microscopy images and generating the name of said molecule according to the iupac nomenclature

Id de solicitud: EUROPA

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a molecule from atomic force microscopy images and generating the name of said molecule according to the iupac nomenclature

Id de solicitud: JAPÓN

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a molecule from atomic force microscopy images and generating the name of said molecule according to the iupac nomenclature

Id de solicitud: CN1595.61

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a molecule from atomic force microscopy images and generating the name of said molecule according to the iupac nomenclature

Id de solicitud: EEUU

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a molecule from atomic force microscopy images and generating the name of said molecule according to the iupac nomenclature

Id de solicitud: INDIA

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a organic molecule from atomic force microscopy images by generating a 2d colored rgb structural representation of said molecule in the form of a ball-and-stick depiction

Id de solicitud: EP23724897

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a organic molecule from atomic force microscopy images by generating a 2d colored rgb structural representation of said molecule in the form of a ball-and-stick depiction

Id de solicitud: JAPÓN

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a organic molecule from atomic force microscopy images by generating a 2d colored rgb structural representation of said molecule in the form of a ball-and-stick depiction

Id de solicitud: 2,0238004694e+11

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a organic molecule from atomic force microscopy images by generating a 2d colored rgb structural representation of said molecule in the form of a ball-and-stick depiction

Id de solicitud: 18/861,451

Inventores: Rubén Pérez Pérez (IP)

Departamento: Física Teórica de la Materia Condensada

A computer implemented method for identifying a organic molecule from atomic force microscopy images by generating a 2d colored rgb structural representation of said molecule in the form of a ball-and-stick depiction

Id de solicitud: 2,0244708464e+11
Inventores: Rubén Pérez Pérez (IP)
Departamento: Física Teórica de la Materia Condensada

9.EMPRESAS BASADAS EN EL CONOCIMIENTO

No tiene

10.SEXENIOS

DEPARTAMENTOS	SEXENIOS 2024	Sexenios abiertos (2019-2024)
FISICA TEORICA DE LA MAT. CONDENSADA	8	19
FACULTAD	97	428

11.PREMIOS

Premio de Investigación Miguel Catalán 2024

Premiado: Francisco José García Vidal
Concedido por: Comunidad Autónoma de Madrid
Departamento: Departamento de Física Teórica de la Materia Condensada

12.PDI DEL DEPARTAMENTO Y ENLACE A SU PERFIL PÚBLICO EN EL PORTAL DE PRODUCCIÓN CIENTÍFICA DE LA UAM [PPC]

12.1. PDI PERMANENTE

BRAVO ABAD, JORGE	biblos-e
CINACCHI, GIORGIO	biblos-e
CUEVAS RODRIGUEZ, JUAN CARLOS	biblos-e
DELGADO BUSCALIONI, RAFAEL	biblos-e
FEIST, JOHANNES MAXIMILIAN	biblos-e
FERNANDEZ DOMINGUEZ, ANTONIO ISAAC	biblos-e
GARCIA GONZALEZ, PABLO	biblos-e
GARCIA VIDAL, FRANCISCO JOSE	biblos-e
LEVY-YEYATI MIZRAHI, ALFREDO	biblos-e
MARCHETTI, FRANCESCA MARIA	biblos-e
MERINO TRONCOSO, JAIME	biblos-e
MORENO SORIANO, ESTEBAN	biblos-e
ORTEGA MATEO, JOSE	biblos-e
PEREZ PEREZ, RUBEN	biblos-e
PORTO ORTEGA, JUAN ANTONIO	biblos-e
POU BELL, PABLO	biblos-e
RODRIGUEZ ARRIAGA, LAURA	biblos-e
SANCHEZ RODRIGO, RAFAEL	biblos-e
TARAZONA LAFARGA, PEDRO JOSE	biblos-e
VALLE REBOUL, ELENA DEL	biblos-e
VELASCO CARAVACA, ENRIQUE	biblos-e
ZOTTI, LINDA ANGELA	biblos-e

12.2 PDI NO PERMANENTE

12.2.1 PDI EMÉRITO

FLORES SINTAS, FERNANDO	biblos-e
MONREAL VELEZ, ROSA	biblos-e
TEJEDOR DE PAZ, CARLOS	biblos-e

12.2.2. PDI DOCTOR NO PERMANENTE

ALLARD, THOMAS FRANÇOIS	
ARAGONES GOMEZ, JUAN LUIS	biblos-e
ARROYO HUIDOBRO, PALOMA	biblos-e
ASSENZA, SALVATORE	biblos-e
BABA, YURIKO CATERINA	biblos-e
BEN ASHER, ANAEL	biblos-e
BURSET ATIENZA, PABLO	biblos-e
KAMRA, AKASHDEEP	
LLOMBART GONZALEZ, PABLO	
MARTIN CANO, DIEGO	biblos-e
STEFFENSEN, GORM OLE	
TICHAUER, RUTH HELENA	biblos-e
VARGAS GUZMAN, HORACIO ANDRES	biblos-e

12.2.3. PERSONAL INVESTIGADOR EN FORMACIÓN

BALDUQUE PICAZO, JOSE	biblos-e
BOSCH FERNANDEZ, ANTONIO MIGUEL	
CABALLERO DOMINGUEZ, ALEJANDRO	
DURA AZORIN, BLAS	
ECHAVE-SUSTAETA OSUNA, JAIME	biblos-e
FERNANDEZ CARBAYO, FRANCISCO	
FERNANDEZ DE LA PRADILLA VISO, DIEGO	
FERNANDEZ LOPEZ, MANUEL	
GEVA, GALOR	biblos-e
GONZALEZ LASTRE, MANUEL EDUARDO	biblos-e
GROISEAU, CASPAR WILHELM	biblos-e
IBAÑEZ FREIRE, PABLO	
KOTOV, OLEG	
LEDNEV, MAKSIM	biblos-e
LUENGO MARQUEZ, JUAN	biblos-e
MAGRINYA AGUILO, PAULA	
MARTINEZ MARTINEZ, PABLO	biblos-e
MATUTE FERNANDEZ-CAÑADAS, FRANCISCO JESUS	biblos-e
ROLDAN PIÑERO, CARLOS	
RÖMLING, ANNA-LUISA	biblos-e
SANCHEZ MARTINEZ, CARLOS JOSE	biblos-e
TINAO NIETO, BERTA	
TRUJILLO MULERO, JARA	biblos-e
VEGA MARTIN, JORGE	biblos-e

