UNIVERSIDAD COMPLUTENSE
MADRID

FACULTAD DE CIENCIAS QUÍMICAS

Nombre y apellidos	Francisco Javier Aoiz Moleres	
Post	Catedrático (Full Professor)	
School	Chemistry	
Departament	Physical Chemistry	
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Research Identification	**Researcher ID**	G-8240-2015
	Código ORCID	0000-0001-5718-5905

Formación académica

Datea	Titles / University
1976	Licenciado con Grado en Ciencias Químicas
1981	PhD in Chemistry

Work experience

Puesto	Organismo/Facultad	Tarea	Fecha
Catedrático (Full Professor)	Chemistry, UCM		2000-
Visiting Professor. Oxford University on sabbatical leave.	Oxford University	Research and Teaching	2005-2006
Associate Professor (P. Titular)	Chemsitry UCM	Research and Teaching	1984-200
Assistant Professor (Profesor Ayudante Dr)	Chemistry, UCM	Teaching	1983-1984
Postdoctoral Researcher and Fulbright Fellow		Research	1981-1983
Profesor Ayudante no doctor	Chemistry UCM	Teaching and research	1976-1980

Docencia

1. **Número de quinquenios docentes : 6 +1 (cambio PTU a CU)**

2. **Resultados de la evaluación docente (Docentia)**
   2 positivos

3. **Asignaturas impartidas en las diferentes titulaciones indicando nombre de asignatura, curso, tipo de actividad: teoría (T), seminarios (S), Prácticas (P), coordinador (C), etc. (Solo a partir de 2009, implantación de los Grados) (G: Grado, M: Máster, D: Doctorado).**

Asignatura	Titulación: G/M/D	Actividad	Curso/s
Physical Chemistry	G		2009-2022
Lasers in Chemistry	M		2014-2015
Spectroscopic Methods	G		2009-2010

4. Número de actividades docentes dirigidas/tutorizadas (TFM; TFG; Prácticas externas, prácticum, etc.)
TFM/DEAs: 5
TFG/Tesis Licenciatura: 6
Prácticas Externas:5
Prácticum:
Otros:

5. Otros méritos relacionados con la actividad docente:

5.1. Proyectos de innovación docente

Fecha	Títulos/ Organismo
2021	Digitalización del laboratorio de Química Física I.

5.2. Participación en comisiones que tengan implicación en los títulos que imparte.

Fecha	Comisión / Organismo
	Comisión de Posgrado
	Comité de Evaluación y Mejora de la Calidad de los Títulos de Máster y Doctorado

Gestión

1. Desempeño de cargos de responsabilidad en gestión universitaria: Decano, Miembro de Junta, Miembro de comisiones, Director de departamento…

Cargo	Organismo/Facultad	Duración
Miembro de Junta de Facultad	Facultad de Química	20 años
Comisión de Investigación	Facultad de Química	20 años

Investigación See below

Otros

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CV date	15/03/2022

Part A. PERSONAL INFORMATION

First name	FRANCISCO JAVIER		
Family name	AOIZ	MOLERES	
Sex (*)	MALE	Birth date (dd/mm/yyyy)	27/03/1954
ID number			
e-mail	aoiz@ucm.es	https://webs.ucm.es/info/dinalaser/	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-5718-5905	

(*) Mandatory

A.1. Current position

Position	Full Professor (Catedrático Universidad)		
Initial date	05/06/2000		
Institution	University Complutense Madrid (UCM)		
Department/Center	Química Física	Facultad de Química	
Country	Spain	Telph. number	+34 913944126
Key words	Molecular collision dynamics, Computational Chemistry		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2005-2006	Visiting Professor. Oxford University on sabbatical leave.
1984-2000	Associate Professor (P. Titular)/UCM/Spain
1983-1984 1981-1983 1976-1980	Assistant Professor (Profesor Ayudante Dr) UCM Postdoctoral Researcher. Columbia University. New York Instructor (Profesor Ayte, no Dr)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD Chemistry	University Complutense Madrid (UCM)	1981
Licensed in Chemical Science	University Complutense Madrid (UCM)	1976

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Seven (6+1 exchange of Associated to Full Professor) six-year research assessment terms. Last assessment 2006-2012 (April 2013) (2013-2018 AP to FP, June 2019). He has supervised 6 PhD thesis (2 in the last 5 years). He has also supervised postdoctoral researchers, Ramón y Cajal and Juan de la Cierva positions, and research projects for Bachelor degrees. He has been PI or has participated in research regional (funded by the Community of Madrid), national (CTQ and Consolider, infrastructure) and EU (RTN) projects.

Source: **Web of Science** (Clarivate Analytics)
Total Citations: 8920 Citations/item: 30.51 Citations/year (last 5 years): 324
Total Publications: 277 en WOS/ 341 Google Scholar **h index: 51** (Clarivate)
Source: **Google Scholar**:
Total Citations: 9844 h index: 55 (Google Scholar) i10-index: 204

UCM Undergraduate Studies in Chemistry Award '*Premio Extraordinario de Licenciatura*', year 1975/1976. National 2nd Award of Undergraduate Studies (*Accesit Premio Nacional de Fin de Carrera*), year 1975/1976. Ministerio de Educación y Ciencia. Award to the best UCM PhD thesis in Chemistry (Premio Extraordinario de Doctorado.) 1980/1981

Author of more than 280 research articles in international journals (some of them in high impact journals: 4 in Science, 4 in Nature Chemistry, 1 in PNAS, 1 in Nature Communications, 6 in Phys. Rev. Lett., 4 in Journal of Physical Chemistry Letters) 5 book chapters and more than 250 communications in international conferences, 130 plenary or invited talks on fields related to molecular reaction dynamics, molecular beams, and spectroscopy. He is an expert in theoretical and computational aspects applied to molecular collisions: quasiclassical trajectory methods, quantum reactive and inelastic scattering. He also has a considerable experience in experimental techniques: molecular beams, mass spectrometry using time-of-flight, laser excitation and detection, REMPI, imaging techniques etc.
He has been PI (29 projects) or has participated in research regional (funded by the Community of Madrid), National (CTQ and Consolider, infrastructure) and EU (RTN) projects. He has supervised 6 PhD thesis, supervisor (tutor) of Master and Doctoral students and of postdoctoral researchers (Ramón y Cajal, Juan de la Cierva, postdocs funded by research grants). He is the coordinator of the doctorate Program '*Theoretical Chemistry and Computational Modelling*' in UCM since 2001.

Annual **Award of the Spanish Royal Society** (RSEQ) in the area of Physical Chemistry in 2006. He is member of various national and international scientific committees and has participated in the organization of international and national conferences, workshops and summer schools. He collaborates with the National Agency of Evaluation and Prospective (ANEP) in the evaluation of research projects, fellowships, research contracts, etc. He routinely acts as evaluator and reviewer of British EPSRC projects. He is reviewer of several Physical Chemistry, Chemical Physics journals (PCCP, JCP, JPC, Science, Nat. Chem. etc.) and he has been member of PhD committees in many instances. Representative of the RSEQ (since 2006) in the **Ownership Board Committee** of the journal a *Physical Chemistry Chemical Physics* (published by the British Royal Society of Chemistry)

Director of the UCM Research Lab (CAI) *Multiphoton and Femtosecond Spectroscopy* from 1992 to 2014. He is Responsible researcher in the UCM of the *Physical Chemistry Associated Unit* linking the CSIC with the Physical Chemistry Department.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*(Total number of articles 2012-2021 period: 85)

1. P. G. Jambrina, J. F. E. Croft, N. Balakrishnan, F. J. Aoiz (**2021**) *Stereodynamic control of cold rotationally inelastic CO plus HD collisions*, **Phys. Chem. Chem. Phys. 23**, 19364-19374. DOI 10.1039/d1cp02755g

2. A. Veselinova, M. Agundez, J. R. Goicoechea, M. Menéndez, A. Zanchet, E. Verdasco, P. G. Jambrina, F. J. Aoiz, (**2021**) *Quantum study of reaction O (^{3}P) + H_2 (v,j) $\rightarrow$ OH + H:*

OH formation in strongly UV-irradiated gas, **Astronomy & Astrophysics 648***,* A76. DOI 10.1051/0004-6361/202140428

3. Cornelia G. Heid, Imogen P. Bentham, Victoria Walpole, Pablo G. Jambrina, F. Javier Aoiz, and Mark Brouard (**2021**) *Controlling the Spin−Orbit Branching Fraction in Molecular Collisions*. **J. Phys. Chem. Letters 12**, 310. DOI: 10.1021/acs.jpclett.0c02941
4. V. Sáez-Rábanos, E. Verdasco, F. J. Aoiz and V. J. Herrero, (**2021**) *The F+HD (v=0, 1; j=0,1) reactions: Stereodynamical properties of orbiting resonances.* **Phys. Chem. Chem. Phys. 23***,* 8002-80012. DOI 10.1039/D0CP05425A
5. F. Javier Aoiz (**2020**) *How interference reveals geometric phase*, **Science 368**, 706-707. DOI 10.1126/science.abb9148
6. C. G. Heid, V. Walpole, M. Brouard, P. G. Jambrina, and F. J. Aoiz (**2019**) *Side-impact collisions of Ar with NO*, **Nature Chemistry 11**, 662–668. DOI: 10.1038/s41557-019-0272-3
7. P. G. Jambrina, M. Menéndez, A. Zanchet, E. García and F. J. Aoiz, **(2019)** How reactant polarization can be used to change the effect of interference on reactive collisions. *Phys.* **Chem. Chem. Phys***.* **21**, 14012-14022. DOI: 10.1039/C8CP06892E,
8. P. G. Jambrina, J. F. E. Croft, H. Guo, M. Brouard, N. Balakrishnan and F. J. Aoiz (**2019**), *Stereodynamical Control of a Quantum Scattering Resonance in Cold Molecular Collisions*, **Phys. Rev. Lett. 123**, 043401(1-6). DOI: 10.1103/ PhysRevLett.123.043401
9. Thomas R. Sharples, Joseph G. Leng, Thomas F. M. Luxfor, Kenneth. G. McKendrick, Pablo G. Jambrina, **F. J. Aoiz**, David W. Chandler and Matthew L. Costen. (**2018**) *Non-intuitive rotational reorientation in collisions of NO(A $^2\Sigma^+$) with Ne from direct measurement of a four-vector correlation.* **Nature Chemistry 10**, 1148. DOI: 10.1038/s41557-018-0121-9.
10. P.G. Jambrina, M. Menéndez, and **F.J. Aoiz**. (**2018**). *Angular momentum–scattering angle quantum correlation: a generalized deflection function*, **Chemical Science 9,** 4837-4850. DOI: 10.1039/c7sc05489k
11. P.G. Jambrina, A. Zanchet, J. Aldegunde, M. Brouard, **F.J. Aoiz**. (**2016**). *Product lambda-doublet ratios as an imprint of chemical reaction mechanism*. **Nature Communications 7**, 13439 (1-8) DOI: 10.1038/ncomms13439
12. Yury V. Suleimanov, **F. J. Aoiz**, and Hua Guo. (**2016**) **Feature Article**: *Chemical Reaction Rate Coefficients from Ring Polymer Molecular Dynamics: Theory and Practical Applications.* **Journal of Physical Chemistry A** 1**20,** 8488-8502 DOI: 10.1021/acs.jpca.6b07140
13. Pablo G. Jambrina, Diego Herráez-Aguilar, **F. J. Aoiz**, Mahima Sneha, Justinas Jankunas, and Richard N. Zare, *Quantum interference between H+D_2 quasiclassical reaction mechanisms*. (**2015**) **Nature Chemistry**. **7**, 661–667 DOI: 0.1038/NCHEM.2295
14. Justin Jankunas, M. Sneha, Richard N. Zare, F. Bouakline, Stuart C. Althorpe, D. Herráez-Aguilar, and **F. J. Aoiz**, (**2014**). *Perspective Physical Sciences: Chemistry: Is the simplest chemical reaction really so simple?* **Proceedings of the National Academic of Sciences (PNAS) 111**, 15-20. DOI: 10.1073/pnas.1315725111.

15. M. Brouard, B. Hornung, and **F. J. Aoiz**, (**2013**). *Origin of collision- induced molecular orientation*. **Physical Review Letters 111**, 183202.

16. J. Jankunas, Richard N. Zare, F. Bouakline, Stuart C. Althorpe, D. Herráez-Aguilar, **F. J. Aoiz**, **(2012)** *Seemingly Anomalous Angular Distributions in H+D_2 Reactive Scattering*, **Science 336**, 1687.

C.2. Congress

1. 1.- F. J. Aoiz "*Young double-slit experiments in chemical reactions: Quantum interferences in reactive scattering.*" 55th Annual meeting of the Israel Chemical Society. Invited Talk. Jerusalem, (Israel), 17-19 February 2020

2. F. J. Aoiz and P. G. Jambrina "*Quantum stereodynamics control of inelastic and reactive collisions*". XXVIII International Symposium on Molecular Beams (XXVIII ISMB)' Invited talk. Edinburg (UK),2 3-28 June 2019

3. F. J. Aoiz and P. G. Jambrina "*Quantum interferences in reactive scattering: A new insight in the reaction mechanisms.*" 10th International Meeting on Photodynamics and Related Aspects (10th IMPRA)' Invited lecture. Cartagena de Indias (Colombia), 3-7 September 2018

4. F. J. Aoiz, P. G. Jambrina, A. Zanchet, M. Menéndez "*Elucidating the reaction mechanism through the Λ-Doublet ratio*." XIV International workshop on Quantum Reactive Scattering 2017. Invited talk. Trieste (Italy), 2-6 July 2017

5. F. J. Aoiz, P. G. Jambrina, A. Zanchet, M. Brouard, "*Λ-Doublet ratio as an imprint of the reaction stereodynamics.*" Stereodynamics 2016. Invited talk. Taipei (Taiwan), 6-11 November 2016

6. F. J. Aoiz. "*Quantum Interferences in chemical reactions: Do they reveal classical mechanisms?*" Conference on the Dynamics of Molecular systems. MOLEC 2016. Plenary Lecture. Toledo, 11-16 September 2016

7. F. J. Aoiz P. G. Jambrina, J. Aldegunde, "*Multiple-slit interferences in reactive scattering." XIII Quantum Reactive Scattering.*" Invited Talk. Salamanca, 6-10 July 2015

8. F. J. Aoiz, J. Aldegunde, P. G. Jambrina,V. J. Herrero, V. Sáez-Rábanos, E. García "*Dynamics of reaction of Mu with hydrogen molecules: zero point energy and tunneling.*" XII Quantum Reactive Scattering." Invited Talk. Bordeaux (Francia), 10-14 June 2013

C.3. Research projects

1. Dinámica de reacciones químicas y nanomateriales inducida por irradiación laser ultrarrápida" Proyecto**. PGC2018-096444-B-I00** Entidad financiadora: Ministerio de Ciencia, Innovación IPs: **F. Javier Aoiz Moleres** y Luis Bañares. Dates: 2019-2021. Financial funding: 254.100, euros.
2. *Procesos moleculares fotoinducidos y colisionales por medio de experimentos láser y*

métodos teóricos. Proyect **CTQ2015-65033-P**.Subdirección General de Proyectos de Investigación. Ministerio de Economía y Competitividad.PI: **F. Javier Aoiz** and Luis Bañares. Dates: 2016-2018. Financial support: 223.400 €.

3. *Dinámica de procesos moleculares mediante experimentos con láser y métodos teóricos*. Proyect **CTQ2012-37404-C02-01.**Ministerio de Economía y Competitividad. Universidad Complutense de Madrid. Coordinado con la Universidad de Salamanca. PI UCM and subproject coordinator: **F. Javier Aoiz** Dates:2013-2015. Funding (UCM): 217.000 euros.
4. *Molecular Astrophysics: The Herschel and Alma era*. Proyecto **Consolider-Ingenio 2010. CDS2009-00038** Ministerio de Ciencia e Innovación. Participants: CSIC-CAB, Universidad Complutense de Madrid, Universidad de Valladolid, Universidad de Castilla la Mancha, CSIC, Instituto Geográfico Nacional, Universidad Pablo Olavide, Universidad de Murcia, Instituto de Astrofísica de Canarias. Project Coordinator: José Cernicharo Quintanilla (CSIC-CAB). Coordinator UCM: **F. Javier Aoiz**. Dates: 2010-2014. Total Funding: 4.000.000 euros
5. *Dinámica de procesos químicos: Experimentos fotoiniciados con láseres de nanosegundo y femtosegundo y métodos teóricos*. Subdirección General de Proyectos de Investigación. Ministerio de Ciencia e Innovación. Proyecto **CTQ2008-02578/BQU**. Investigador principal: F. Javier Aoiz. Duración: 2009-2013. Funding: 408.000 euros.