



Mehran Mostafavi, mehran.mostafavi@universite-paris-saclay.fr tél : 06 75 93 94 84, Birth 31 July 1962

I'm 62 years old. I'm married and I have a child. I am a professor (PRCEX, Exceptional rank) at the University Paris-Saclay. I am the scientific deputy director at the CNRS at the INC.

I conduct my research activities at the Physical Chemistry Institut (UMR 8000) in Orsay. I am in charge of the "Mutualized Research Means" project of the ELYSE platform (centre for ultrafast kinetics) and I am the head of the "Condensed phase elementary chemical acts" research team which includes two CNRS researchers, two PhD students and one post-doctoral student. I am a Fellow Professor of Tokyo University of Japan since 2010. The main

research activity of the last 5 years concerns the reactivity of the electron (before its solvation) and the hole (H_2O^+) in water. This is an ultrafast chemistry (less than one picosecond) induced in water by ionizing radiation.

Recently I am interesting on CO_2 conversion by radiolytic method and mainly interesting on the mechanism of CO_2 reduction on the surface of nanoparticles.

CURRICULUM VITÆ

Name, First name	<i>MOSTAFAVI Mehran</i>
Birth day and place	31 / 07 / 1962, Hamadan / IRAN, married, one child, resident in France since 1978
Personal address	5 Chemin des Closeaux, 92410 Ville d'Avray, FRANCE
Profession	Professor at Université Paris-Sud 11, Scientific Deputy Director at INC/CNRS.
Work address	Laboratoire Chimie Physique (http://www.lcp.u-psud.fr), Université Paris Sud, Orsay Bât 349, 91405 Orsay Cedex. Tel : 01 69 15 78 87, mehran.mostafavi@u-psud.fr

Diplomas and Functions

1985	Master of Physical Chemistry (Université Paris-Sud)
Sept. 86 - Fev. 89	Ph'D (MRT, grant), Université Paris-Sud 11, Supervised by par J. Belloni,
Sept. 88 - Fév. 89	Engineer Consul, at QUANTEL, 91941 Les Ulis, FRANCE
Fév. 89 - Oct. 89	R&D Engineer, at Metalor (8 Rue Portefoin, Paris, FRANCE)
Oct. 89 – Sep 98	Researcher position at CNRS, Orsay, FRANCE
Avril 93	Diplôme National d'Habilitation à Diriger des Recherches in Sciences Physiques
Since Sep. 98	Professor at Université Paris-Saclay
Jan. 2001	Head of group TEMiC and head of Fast Kinetics team at LCP
Oct. 2002	Director of Executive board of ELYSE Picosecond pulse radiolysis and femtosecond laser
Since 2005	Member of Scientific board of international Miller Conference on radiation Chemistry
Since Sep. 2004	Director of Master program of Physical Chemistry at University Paris-Sud,
Jan. 2006-Jan2015	Director of Laboratoire de Chimie Physique (UMR CNRS/Université Paris-Sud) and Center of ELYSE-CLIO. LCP has 140 members : 55 permanent researchers, 45 Technical staffs and 40 non permanent researchers.

Jan. 2015

Scientific Deputy Director at / CNRS/Institut Chimie

Research interests

Radiation processing, Synthesis of Metal and Semiconductor Nano Clusters induced by radiation, Pulse Radiolysis and Photolysis, Ultrafast Kinetics, Solvation Dynamics, Electron Transfer in Solution, Photographic Processes, Optical Limiting.

Mains Results

Size dependent redox potential of metal clusters in solutions, Ligand effect on the spectral properties and redox properties of metal atoms in solution. Synthesis of bimetallic particles, Electron transfer in non polar solution, Optical limitation induced by metal particles, Solvated electron and metal cation pairs. Solvation dynamics of electron in alcohol. Germinate recombination, high temperature picosecond pulse radiolysis.

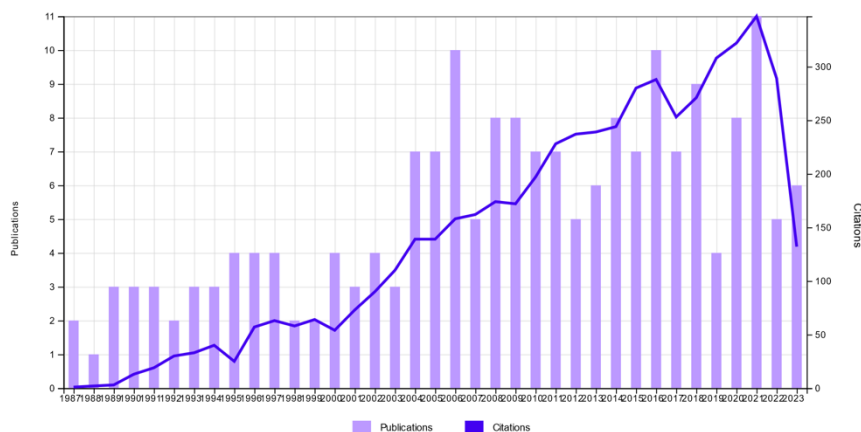
Scientific Expertise

- ✓ Reviwer pour une dizaine de journaux internationaux comme J. Phys. Chem. A., B. et C. Chem Phys. Letter, Langmuir, PCCP, Langmuir, Radiation Physical Chemistry, Nature Communication
- ✓ Membre de Scientific board of international Miller Conference on Radiation Chemistry”-
- ✓ Membre de Scientific board: Asia-Pacific Symposium on Radiation Chemistry” (APSRC)
- ✓ Membre de Scientific board: Tihany” Symposia on Radiation Chemistry
- ✓ Formation donnée dans le cadre de Training course of International Agency of Atomic Energy,
- ✓ Membre de Interdisciplinary Program Advisory Committee of GANIL (Grand Accélérateur National des Ions Lourds) de Caen
- ✓ Membre du MERIL (Mapping of the European Research Infrastructure Landscape) Advisory Committee members 2016-2019
- ✓ Membre Of French National Agency ANR : **(ACHN) 204-2016**

Distinction

Sept. 2008 Appointed Fellow Professor of Tokyo University in Japan

Price of Senior Researcher in Physical chemistry in France 2019.



The number of publication and the citation of Mehran Mostafavi according to the web of science.

Publications

[200](#) Total

Times Cited

5,480 Times Cited Total.

4,527 Times Cited Without self-citations.

27.44 Average per item.

H-Index 41

Publications during the 2017-2022

Dose Rate Effects in Fluorescence Chemical Dosimeters Exposed to Picosecond Electron Pulses: An Accurate Measurement of Low Doses at High Dose Rates

Precek, M; Kubelik, P; Vysin, L; Schmidhammer, U; Larbre, JP; Demarque, A; Jeunesse, P; **Mostafavi, M**; Juha, L

Radiation Research, 2022 197 (2), pp.131-148

IF = 4.5

Radiation-Assisted Hydrolysis of Lignocellulosic Biomass. Mechanistic Study

Al Gharib, S; **Mostafavi, M** and Belloni, J

WASTE AND BIOMASS VALORIZATION, 2022

10.1007/s12649-022-01933-4

IF = 4

Modulation of the Directionality of Hole Transfer between the Base and the Sugar-Phosphate Backbone in DNA with the Number of Sulfur Atoms in the Phosphate Group

Denisov, SA; Ward, S; Shcherbakov, V; Stark, AD; Kaczmarek, R; Radzikowska-Cieciura, E; Debnath, D; Jacobs, T ; Kumar, A; Sevilla, MD; Pernot, P; Dembinski, R; **Mostafavi, M**; Adhikary, A

J. Phys.Chem. B. 2022, 126 (2), 430

10.1021/acs.jpcc.1c09068

IF = 3.5

The mechanism of organic radical oxidation catalysed by gold nanoparticles

Shcherbakov, Viacheslav; Denisov, Sergey A.; **Mostafavi, Mehran**

PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 2021, 23, 26494
10.1039/d1cp03875c
IF = 4

Quasi-Free Electron-Mediated Radiation Sensitization by C5-Halopyrimidines
Ma, Jun; Bahry, Teseer; Denisov, Sergey A.; Adhikary, Amitava; **Mostafavi, Mehran**
JOURNAL OF PHYSICAL CHEMISTRY A, 2021, 125, 7967
10.1021/acs.jpca.1c05974
IF = 3.2

The mystery of sub-picosecond charge transfer following irradiation of hydrated uridine monophosphate
de la Lande, Aurelien; Denisov, Sergey; **Mostafavi, Mehran**
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 2021, 23, 21148
10.1039/d0cp06482c
IF = 4

Radiolytic Approach for Efficient, Selective and Catalyst-free CO₂ Conversion at Room Temperature
Hu, Changjiang; Al Gharib, Sarah; Wang, Yunlong; Gan, Pingping; Li, Qiuhaio; Denisov, Sergey A.; Le Caer, Sophie; Belloni, Jacqueline; Ma, Jun; **Mostafavi, Mehran**
CHEMPHYSCHEM, 2021, 22, 1900
10.1002/cphc.202100378
IF = 3

Reaction Mechanisms of the Degradation of Fluoroethylene Carbonate, an Additive of Lithium-Ion Batteries, Unraveled by Radiation Chemistry
Puget, Marin; Shcherbakov, Viacheslav; Denisov, Sergey; Moreau, Philippe; Dognon, Jean-Pierre; **Mostafavi, Mehran**; Le Caer, Sophie
CHEMISTRY-A EUROPEAN JOURNAL, 2021, 27, 8185
10.1002/chem.202100562
IF= 8

Presolvated electron reactivity towards CO₂ and N₂O in water
Denisov, Sergey A.; **Mostafavi, Mehran**
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 2021, 23, 5804.
10.1039/d1cp00373a
IF = 4

Real-Time Observation of Solvation Dynamics of Electron in Actinide Extraction Binary Solutions of Water and n-Tributyl Phosphate
Bahry, Teseer; Denisov, Sergey A.; Moisy, Philippe; Ma, Jun; **Mostafavi, Mehran**
JOURNAL OF PHYSICAL CHEMISTRY B, 2021, 125, 3843.
10.1021/acs.jpcc.0c10831
IF = 3.8

Selective Oxidation of Transient Organic Radicals in the Presence of Gold Nanoparticles
Shcherbakov, Viacheslav; Denisov, Sergey A.; **Mostafavi, Mehran**
NANOMATERIALS, 2021, 11.
10.3390/nano11030727

IF = 6

Confined water radiolysis in aluminosilicate nanotubes: the importance of charge separation effects

Pignie, Marie-Claire; Shcherbakov, Viacheslav; Charpentier, Thibault; Moskura, Melanie; Carteret, Cedric; Denisov, Sergey; **Mostafavi, Mehran**; Thill, Antoine; Le Caer, Sophie
NANOSCALE, 2021, 13, 3092.

10.1039/d0nr08948f

IF = 7

Anisotropic Time-Resolved Dynamics of Crystal Growth Induced by a Single Laser Pulse Nucleation

Al Gharib, Sarah; El Omar, Abdel Karim; Naja, Adnan; Deniset-Besseau, Ariane; Denisov, Sergey A.; Pernot, Pascal; **Mostafavi, Mehran**; Belloni, Jacqueline
CRYSTAL GROWTH & DESIGN, 2021, 21, 799.

10.1021/acs.cgd.0c01016

IF = 4

Oxidation of Silver Cyanide $Ag(CN)_2^-$ by the OH Radical: From Ab Initio Calculation to Molecular Simulation and to Experiment

Leonard, Celine; Le Quere, Frederic; Adjei, Daniel; Denisov, Sergey A.; **Mostafavi, Mehran**; Archirel, Pierre

JOURNAL OF PHYSICAL CHEMISTRY A, 2020, 124, 10787.

10.1021/acs.jpca.0c08038

IF = 3

On the Primary Water Radicals' Production in the Presence of Gold Nanoparticles: Electron Pulse Radiolysis Study

Shcherbakov, Viacheslav; Denisov, Sergey A.; **Mostafavi, Mehran**
NANOMATERIALS, 2020, 10.

10.3390/nano10122478

IF = 6

Hot-Electron Photodynamics in Silver-Containing BEA-Type Nanozeolite Studied by Femtosecond Transient Absorption Spectroscopy

Kawtharani, Farah; Mintova, Svetlana; Retoux, Richard; **Mostafavi, Mehran**; Buntinx, Guy; De Waele, Vincent

CHEMPHYSICHEM, 2020, 21, 2634.

10.1002/cphc.202000822

IF = 3

One Way Traffic: Base-to-Backbone Hole Transfer in Nucleoside Phosphorodithioate

Kaczmarek, R.; Ward, S.; Debnath, D.; Jacobs, T.; Stark, A. D.; Korczynski, D.; Kumar, A.; Sevilla, M. D.; Denisov, S. A.; Shcherbakov, V.; Pernot, P.; **Mostafavi, M.**; Dembinski, R.; Adhikary, A.

CHEMISTRY-A EUROPEAN JOURNAL, 2020, 26, 9407.

10.1002/chem.202002715

IF = 8

One Way Traffic: Base-to-Backbone Hole Transfer in Nucleoside Phosphorodithioate

Kaczmarek, Renata; Ward, Samuel; Debnath, Dipra; Jacobs, Taisiya; Stark, Alexander D.; Korczynski, Dariusz; Kumar, Anil; Sevilla, Michael D.; Denisov, Sergey A.; Shcherbakov, Viacheslav; Pernot, Pascal; **Mostafavi, Mehran**; Dembinski, Roman; Adhikary, Amitava
CHEMISTRY-A EUROPEAN JOURNAL, 2020, 26, 9495.

10.1002/chem.202000247

IF = 8

Hydrated electrons induce the formation of interstrand cross-links in DNA modified by cisplatin adducts

Behmand, B.; Noronha, A. M.; Wilds, C. J.; Marignier, J-L; **Mostafavi, M.**; Wagner, J. R.; Hunting, D. J.; Sanche, L.

JOURNAL OF RADIATION RESEARCH, 2020, 61, 343.

10.1093/jrr/rraa014

IF = 4

How can an electron induce oxidative damage in DNA in solution

Ma, Jun; Denisov, Sergey; Adhikary, Amitava; **Mostafavi, Mehran**

L'Actualité chimique, 2020, 450, 13.

IF = 1

Mechanisms of metal nanoparticles nucleation and growth studied by radiolysis

Belloni, J.; Marignier, J-L; **Mostafavi, M.**

RADIATION PHYSICS AND CHEMISTRY, 2020, 169

10.1016/j.radphyschem.2018.08.001

IF = 2.7

Scintillating crystals for the Neutral Particle Spectrometer in Hall C at JLab

Horn, T.; Berdnikov, V. V.; Ali, S.; Asaturyan, A.; Carmignotto, M.; Crafts, J.; Demarque, A.; Ent, R.; Hull, G.; Ko, H-S; **Mostafavi, M.**; Munoz-Camacho, C.; Mkrtchyan, A.; Mkrtchyan, H.; Nguyen Trung, T.; Pegg, I. L.; Rindel, E.; Somov, A.; Tadevosyan, V.; Trotta, R.; Zhamkochyan, S.; Wang, R.; Wood, S. A.

NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT

2020, 956.

10.1016/j.nima.2019.163375

IF = 1.5

Pulse radiolysis study on the reactivity of NO₃ & x^{2d9}; radical toward uranous(iv), hydrazinium nitrate and hydroxyl ammonium nitrate at room temperature and at 45 degrees C

Musat, R.; Marignier, J. L.; Le Naour, C.; Denisov, S.; Venault, L.; Moisy, Ph.; **Mostafavi, M.**

PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 2020, 22, 5188.

10.1039/c9cp07034f

IF = 4

Ultrafast Processes Occurring in Radiolysis of Highly Concentrated Solutions of Nucleosides/Tides

Ma, Jun; Denisov, Sergey A.; Adhikary, Amitava; **Mostafavi, Mehran**
INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES
2019, 20.

10.3390/ijms20194963

IF = 6

Key Role of the Oxidized Citrate-Free Radical in the Nucleation Mechanism of the Metal Nanoparticle Turkevich Synthesis

Al Gharib, Sarah; Marignier, Jean-Louis; El Omar, Abdel Karim; Naja, Adnan; Le Caer, Sophie; **Mostafavi, Mehran**; Belloni, Jacqueline

JOURNAL OF PHYSICAL CHEMISTRY C, 2019, 123, 22624.

10.1021/acs.jpcc.9b06090

IF = 4

Mechanism of $(SCN)_2^-$ Formation and Decay in Neutral and Basic KSCN Solution under Irradiation from a Pico- to Microsecond Range

Wang, Furong; Pemot, Pascal; Marignier, Jean-Louis; Archirel, Pierre; **Mostafavi, Mehran**
JOURNAL OF PHYSICAL CHEMISTRY B, 2019, 123, 6599.

10.1021/acs.jpcc.9b05560

IF = 3.5

Observation of dissociative quasi-free electron attachment to nucleoside via excited anion radical in solution

Ma, Jun; Kumar, Anil; Muroya, Yusa; Yamashita, Shinichi; Sakurai, Tsuneaki; Denisov, Sergey A.; Sevilla, Michael D.; Adhikary, Amitava; Seki, Shu; **Mostafavi, Mehran**
NATURE COMMUNICATIONS, 2019, 10.

10.1038/s41467-018-08005-z

IF = 17

Ultrafast Electron Attachment and Hole Transfer Following Ionizing Radiation of Aqueous Uridine Monophosphate

Ma, Jun; Denisov, Sergey A.; Marignier, Jean-Louis; Pernot, Pascal; Adhikary, Amitava; Seki, Shu; **Mostafavi, Mehran**

JOURNAL OF PHYSICAL CHEMISTRY LETTERS, 2018, 9, 5105.

10.1021/acs.jpcclett.8b02170

IF = 7

Reaction mechanisms in swelling clays under ionizing radiation: influence of the water amount and of the nature of the clay mineral.

Laine, M.; Balan, E.; Allard, T.; Paineau, E.; Jeunesse, P.; Mostafavi, M.; Robert, J. -L.; Le Caer, S*. *RSC Adv.* 7:526–534 (2017)

IF = 3.1

Reactivity of prehydrated electrons toward nucleobases and nucleotides in aqueous solution.

Ma, Jun; Wang, Furong; Denisov, Sergey A.; Adhikary, Amitava; Mostafavi, Mehran*
Science Advances 3:e1701669 (2017)

IF = 14

Effect of the solvation state of electron in dissociative electron attachment reaction in aqueous solutions.

Wang, F.; Archirel, P.; Muroya, Y.; Yamashita, S.; Pernot, P.; Yin, C.; El Omar, A. K.; Schmidhammer, U.; Teuler, J.; Mostafavi, M.*
Phys. Chem. Chem. Phys. 19:23068–23077 (2017)

IF = 4.1

Observation and Simulation of Transient Anion Oligomers (LiClO₄)-(n = 1-4) in Diethyl Carbonate LiClO₄ Solutions. Wang, F.; Pernot, P.; Archirel, P.; Schmidhammer, U.; Ortiz, D.; Le Caër, S.; Mostafavi, M.* *J. Phys. Chem. B* **121**:7464–7472 (2017)
IF = 3.2

Degradation of an Ethylene Carbonate/Diethyl Carbonate Mixture by Using Ionizing Radiation. Wang, F.; Varenne, F.; Ortiz, D.; Pinzio, V.; Mostafavi, M.; Le Caer, S.* *European journal of chemical physics and physical chemistry* **18**:2799–2806 (2017)
IF = 3.1

Ultra-fast charge migration competes with proton transfer in the early chemistry of H₂O⁺. Wang, Furong; Schmidhammer, Uli; de la Lande, Aurélien; Mostafavi, Mehran* *Phys. Chem. Phys. Chem* **19**:2894–2899 (2017)
IF = 4.1

Synthesis of Metal Nanoparticles and Patterning in Polymeric Films Induced by Electron Nanobeam. Yamamoto, H. ; Kozawa, T. ; Tagawa, S. ; Naito, M. ; Marignier, J. L.; Mostafavi, M. ; Belloni, J* *J. Phys. Chem. C* **121**:5335–5340 (2017)
IF = 3.2