

INFORMAZIONI PERSONALI



Emiliano Fratini

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C.F. FRTMLN73T26G999Z

Gender M | Date of Birth 26 Dec. 1973 | Nationality Italian

CURRENT POSITION

Full Professor in Physical Chemistry, full time employment, Department of Chemistry "Ugo Schiff", University of Florence.

TITLES

Doctorate in Chemical Sciences

Master's degree in chemistry (110/110 cum laude)

PROFESSIONAL EXPERIENCE

Dec. 2018 –

Oct. 2015 – Nov. 2018

Jan. 2005 – Sept. 2015

Jan. 2002 – Dec. 2004

Sept. 1999 – Aug. 2001

Nov. 1998 – Dec. 2001

May 1998 – Oct. 1998

Full Professor in Physical Chemistry, Department of Chemistry "Ugo Schiff", University of Florence

Associate Professor in Physical Chemistry, Department of Chemistry "Ugo Schiff", University of Florence

Assistant Professor and Senior Researcher in Physical Chemistry, Department of Chemistry "Ugo Schiff", University of Florence

Post-Doc, Department of Chemistry "Ugo Schiff", University of Florence. Title of the Project: "Investigation of the kinetic glass transition in concentrated protein solutions as models for short-range attraction systems."

Visiting Scholar, Department of Nuclear Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA.

Doctorate in Chemical Sciences, University of Florence, XIV Cycle.

Fellowship (Co.co.co.), Center for Colloid and Surface Science (CSGI) on EC funds (Joule, contract JOR3-CT98-0307) for the development and stabilization of a Bio-Oil/Diesel emulsion and its use in diesel engines. The results on the emulification process have been covered by a patent application.

EDUCATION

Nov. 1998 – Dec. 2001

Doctorate in Chemical Sciences, University of Florence, XIV Cycle.

Thesis Title: "On the Role of Water and Additives in the Hydration of Portland Cement: A Neutron and X-Ray Scattering Study". Supervisors: Prof. P. Baglioni, Prof. S.H. Chen.

In collaboration with the Department of Nuclear Engineering (MIT, Cambridge, MA, USA) and CTG-ItalCementi Group.

Nov. 1992 – Apr. 1998

Master's degree in chemistry 110/110 cum laude (Physical Chemistry), University of Florence

Thesis Title: "Supra-molecular Structures from Calixarenes in Host-Guest Systems".

Supervisor: Prof. P. Baglioni. Co-supervisor: Dr. P. Lo Nostro.

In collaboration with Prof. R. Ungaro and Prof. A. Pochini, Dept. di Organic and Industrial Chemistry, University of Parma.

WORK ACTIVITIES AND EXPERIENCES

Services

2022-	Director of the Italian Center for Colloid and Surface Science (Consorzio per lo Sviluppo dei Sistemi a Grande Interfase, CSGI).
2022-	Member of the Doctorate Board in Photo Induced Processes , University of Perugia.
2019-2023	Member of the Supervisory Board , BREAK BIOFILMS Training Network H2020-MSCA-ITN-2019.
2018	Member of the Examination Board , Doctorate in Chemical and Pharmaceutical Sciences, University of Siena.
2018	Member of the Examination Board , RTD/A (SSD CHIM/02), University of Pisa.
2017–2021	Vice-President for the Master's and Bachelor's degrees in Chemistry and Chemical Sciences , University of Florence.
2017–2021	President of the Joint Committee for the Master's and Bachelor's degrees in Chemistry and Chemical Sciences , University of Florence.
2014–	Member of the Doctorate Board in Chemical Sciences , University of Florence.
2014–	Member of the Interdepartmental Center for the Research on Alternative and Renewables Energies (CREAR).
2012–2016	Member of the Scientific Committee, Regional Innovation Pole for the Nanotechnologies (NanoXM).
2008–2020	Member of the Organization Committee of the Master IMES (International Master in Bioenergy and Environment) , University of Florence.
2006–	Member of the Italian Chemical Society (SCI).
2004–2015	Member of the Scientific Committee, NANOCEM (EPFL, Lausanne, Switzerland).
2003–	Member of the Italian Society for Neutronic Spectroscopy (SISN).
1999–	Member of the Consorzio per lo Sviluppo dei Sistemi a Grande Interfase (CSGI) , operative unit of Florence, Italy.

Reviewer for National and International Institutions/Funds

Swiss National Science Foundation, 2016, 2019 e 2020.
 “Valutazione della Qualità della Ricerca 2015-2019” GEV03.
 “Valutazione della Qualità della Ricerca 2011-2014” GEV03.
 “Premi alla Ricerca 2015” – University of Venice.
 “PRIN: Progetti Di Ricerca di Rilevante Interesse Nazionale”, 2015.
 “Bando Assegni di Ricerca 2014” – University of Calabria.
 Beam-time calls in Large Scale Facilities (NIST Center for Neutron Research: 2010– , ORNL: 2018–).
 “The American Chemical Society Petroleum Research Fund” 2013.
 “Futuro in Ricerca” 2013.
 “Rita Levi Montalcini” 2013.
 “Valutazione della Qualità della Ricerca 2004-2010” GEV03 e GEV02.

Editorial Committees

Nanomaterials (2020-), Journal of Chemistry (2017-), Frontiers in Physics Review Editor (2015-), Frontiers in Chemistry Review Editor (2015-), ISRN Physical Chemistry (2011-2017)

Reviewer for

Journal of Physical Chemistry B/C/Letter, Langmuir, Physical Chemistry Chemical Physics, Journal of Colloid and Interface Science, Journal of Chemical Physics, Biophysical Journal, Energy and Environmental Science, Energy and Fuels, New Journal of Chemistry, Journal of Chemistry, Thermochimica Acta, Cement and Concrete Research, Journal of the Royal Society Interface, Materials and Design, Journal of Material Science, Materials and Structures, Journal of Material Research, Arabian Journal of Chemistry.

Funded Research Projects**National and International Projects:**

2019 ARTES4.0: "Advanced Robotics and enabling digital TEchnologies & Systems 4.0" (48 months) **Participant**

PRIN2017: "*Structure and Dynamics of Functional Gels for Conservation of Cultural Heritage*" (36 months) **Participant**

2019 PON Ricerca e Innovazione: "AGM for Cultural Heritage - Materiali di nuova generazione per il restauro dei Beni Culturali: nuovo approccio alla fruizione. ARS01_00697" (24 months) **Participant**

FFABR2017 (Fondo di Finanziamento per le Attività Base di Ricerca) (12 months)

2016 H2020-MCT-ITN-ETN: "BIOCLEAN: *BIOfilm management and CLEANing by leveraging fundamental understanding of biological, chemical and physical combined approaches*" (48 months) **Scientist in Charge**

2013 FP7-PEOPLE-IAPP: "ISSFLOW: *Intelligent Structuring Systems for Complex Flowing Products*" (48 months) **Scientist in Charge**

2013 FIR: "*Materiali nanostrutturati avanzati per cementi eco-sostenibili: studio delle proprietà strutturali e strategie innovative per la loro valorizzazione*" (36 months) **Participant**

2010 FP7-PEOPLE-IAPP: "CAP-IT!: *Advanced encapsulation technology for sustainable detergency*" (48 months) **Key Personnel**

2010 FP7-PEOPLE-2010-ITN: "TRASCEND: *Understanding TRANSport for Concrete which is Eco friendly iNnovative and Durable*" (48 months) **Associate Partner**

PRIN2010-2011: "*Soft Matter Nanostrutturata: dall'indagine chimico-fisica allo sviluppo di applicazioni innovative*" (24 months) **Participant**

PRIN2008: "*Materiali Nanostrutturati Funzionali ottenuti da self-assembly di anffilli bio-ispirati*" (24 months) **Participant**

FIRB2007: "*Nuova filiera produttiva per il comparto tessile calzatura italiano basata su polimeri nanocomposti*" (36 months) **Participant**

PRIN2006: "*Aggregati di nucleolipidi: effetto del self-assembly e del riconoscimento molecolare sulla microstruttura*" (24 months) **Participant**

1998 JOULE (JOR3-CT98-0307): "BIOEMULSION: Development of a Bio Crude Oil / diesel Oil Emulsion" (36 months) **Key Personnel.**

Industrial Projects:

2020 ENI: "*Valutazione della struttura e delle caratteristiche degli additivi per lubrificanti mediante nuove metodologie*" (36 months) **PI**

2020 BioMerieux: "*Prototipazione e analisi di fasi solide e liquide basate sull'uso di nano particelle*" (12 months) **PI**

2020 P&G: "*Comprensione del meccanismo sol-gel di formazione di matrici incapsulanti per il delivery di principi attivi*" (12 months) **PI**

2019 P&G: "*Comprensione del meccanismo sol-gel di formazione di matrici incapsulanti per il delivery di principi attivi*" (12 months) **PI**

2019 BioMerieux: "Ottimizzazione del processo di ricopertura di puntali in plastica mediante nanostrutture in oro" (12 months) **PI**

2017 ENI: "Studio di nuove metodologie di laboratorio per lo screening di additivi disperdenti e l'ottimizzazione di lubrificanti" (24 months) **PI**

2013 ENI: "Nuovi Additivi per Lubrificanti e Carburanti" (36 months) **PI**

2017 BioMerieux: "Prototipazione e Analisi di Fasi solide basate sull'uso di nanoparticelle" (12 months) **PI**

2016 BioMerieux: "Prototipazione e Analisi di Fasi solide basate sull'uso di nanoparticelle" (12 months) **PI**

2012 Martelli: "Messa a punto di un dentifricio remineralizzante" (12 months) **PI**

Regional Projects:

2017 POR FSE 2014 - 2020: "Prototipazione, analisi e industrializzazione di fasi solide basate sull'uso di nano- strutture inorganiche per test diagnostici - PAIN'T" in collaborazione con bioMérieux Italia s.p.a. (24 months) **PI**

2011, 2016- Fondi per la ricerca scientifica d'Ateneo (ex 60%) (12 months) **PI**

2006-2010, 2012-2015 Fondi per la ricerca scientifica d'Ateneo (ex 60%) (12 months) **Participant**

2010 REGIONE TOSCANA: "TemArt (Tecniche avanzate per la conoscenza materica e la conservazione del patrimonio culturale)" (30 months) **Participant**

2001 Progetto Giovani Ricercatori: "Studio Della Cinetica di Transizione Vetrosa in Proteine come Modello per Sistemi Dominati da Interazioni Attrattive a Corto Raggio" (12 months) **PI**

Organization of Scientific Congresses e Schools

EF served several Scientific, Advisory and Organizing Committees in national and international Conferences/Congresses and Directed a thematic school on neutron scattering.

Scientific Activity

The scientific interest of EF is directed towards the Physical Chemistry of Colloids and Large Interphase Systems in general, with particular regard to the study and characterization of porous nanostructured materials and to the understanding of the dynamics of interphase and confined water in these systems. The scientific activity while being homogeneous in the theme of the "Soft Condensed Matter" can be schematically distributed over 6 main topics.

- 1) structural characterization of porous reactive systems (cementitious mixtures) and non-reactive systems (polyoxy molecules, proteins, DNA, RNA, hydrogels, silica) and of the relaxation dynamics of the water confined into them;
- 2) study of the hydration kinetics of cement mixtures with particular regard to the effect of superfluidifying additives on the nucleation and growth processes of the hydrate phases and on the modification of their nanostructure;
- 3) development of hydrogels and organogels with controlled mesoporosity as confinement tools for water-based cleaning solutions or organic solvents for innovative applications in the field of selective removal of organic and inorganic coatings;
- 4) study of phononic propagation in biological macromolecules and its relationship with the secondary structure and biological activity.
- 5) study of the interaction potentials in the case of concentrated protein solutions as models for the understanding of structural arrest phenomena regulating the crystallization processes and the medical pathologies associated with protein aggregation;
- 6) design and / or characterization of colloidal / composite systems of various kinds in areas like: sensors, lubricants and fuels, antioxidants, antibacterial agents, etc.

OTHER INFO

Scientific Production and Bibliometry

EF is **author of 167 publications** of which 159(161) in journals of high international prestige indexed by WoS (Scopus) and 18(6) featured in other journals and / or book chapters. To these are added **8 national/international patents**. The detailed list of the 161 pubs can be found on ORCID (<https://orcid.org/0000-0001-7104-6530>).

The **total number of citations is greater than 4500(4700)**, the average number of citations per article is around 29, with a **Hirsch index of 38(39)** on WoS(Scopus) to indicate the scientific relevance of the publishing position of the publications and their diffusion within the scientific community.

Invited Talks and other contributions

EF is the author of about 20 invited talks at national and international congresses and schools. He is also author or co-author of about 80 oral / poster presentations at congresses, about 25 of them presented personally.

Patents

- Notari, M.; Rausa, R.; Assanelli, G.; Ferraro, G.; **Fratini, E.**; Baglioni, P. "Method for the assessment of the dispersing capacity of new or used lubricating compositions and of additives for lubricating" WO2021205360A1; filing 14/10/2021
- Notari, M.; Rausa, R.; Assanelli, G.; Ferraro, G.; **Fratini, E.**; Baglioni, P. "Metodo per la valutazione della capacità disperdente di composizioni lubrificanti, nuove o usate, e additivi per composizioni lubrificanti" Application number **102020000007351**; IT202000007351A; filing date 7/04/2020
- Fernandez Prieto, S.; Franco, J.M.; **Fratini, E.**; Craig, J.; Mirtinez Garcia, I.; O'Sullivan, D.G.; Saini,

- G.; Santan, H.; Smets, J.; Vyas, R. *Gels Comprising a hydrophobic material*. WO/2019/016706. PCT/IB2018/055306. Application number **117382484.8/117382485.5-1375**; filing date 21/07/2017
- Fernandez Prieto, S.; Franco, J.M.; **Fratini, E.**; Craig, J.; Mirtinez Garcia, I.; O'Sullivan, D.G.; Saini, G.; Santan, H.; Smets, J.; Vyas, R. *Gels Comprising a hydrophobic material*. WOxxxx. Application number **-1375**; confirmation number xxxx; filing date 21/07/2017
 - Smets, J.; Pintens, A.; Keijzer, O.P.D.T.; Bodet, J-F.; Lebron, A.; **Fratini, E.**; Vannucci, C.; Ambrosi, M.; Baglioni, P.; Guinebretiere, S.J.; Yan, N.; Liu, H. *Composition comprising encapsulates, and process for making them*. Application number **12/969,817**; confirmation number 4959; filing date 16/12/2010. (CA2784716 (A1) — 2011-06-23)
 - Ambrosi, M.; Baglioni, P.; Bonini, M.; **Fratini, E.** *Nanoparticelle monodisperse di ossidi ed idrossidi metallici e loro applicazione nei settori tessile, cartario e ceramico*. Domanda di brevetto n. **FI2006A000313** del 11/12/2006, attestato di brevetto per Invenzione Industriale n. 0001368826.
 - Baglioni, P.; **Fratini, E.**; Ricceri, R.; Sarti, G.; Chiamamonti, D. (Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase, Italy). - *Engine fuels consisting of an emulsion comprising mineral and/or natural oils, their preparation and use in internal combustion engine*. PCT Int. Appl. **WO 2001002516 A1**, 20010111, 10 pp. CODEN: PIXXD2. APPLICATION: WO 1999-EP4607 19990702.
 - Baglioni P., **Fratini E.**, Ricceri R., Sarti G., Chiamamonti D. - *Engine fuels consisting of an emulsion comprising mineral and/or natural oils, their preparation and use in internal combustion engine*. Brevetto Europeo **PCT/EP99/04607** depositato il 02/07/1999.

TEACHING ACTIVITY

Since 2005 the teaching activity of EF is in the Physical Chemistry area and it has been carried out and partly still takes place at the University of Florence in the Master's Degree courses in Chemical Sciences, and in Food Science/Technology, Degree in Optics and Optometry, in Biotechnology, and for the International Master's Degree in Bioenergy and Environment (more than 12 CFU/year). EF is/has been tutoring or co-tutoring more than 20 graduate or undergraduate theses in Chemistry, Food Science and Technology, Diagnostics and Materials for Conservation and Restoration, Optics and Optometry and International Masters: IMES (International Master in Bioenergy and Environment) and EMASCO-COSOM (European Master in Supramolecular and Colloidal Chemistry). EF has been tutoring 4 doctoral theses in Chemical Sciences completed (XXVIII, XXIX, XXX cycle) and 2 in progress. Tutor of 8 post-Doc students.

PERSONAL SKILLS

Mother tongue

Italian

Other languages

COMPREHENSION		SPOKEN		WRITTEN
Listening	Reading	Interaction	Oral production	
Inglese	C1	C1	C1	C1

Patent License

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Personal Data

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.

Florence, 21st August 2022



PUBLICATIONS IN THE LAST 5 YEARS:

1. T. Guaragnone, M. Rossi, D. Chelazzi, R. Mastrangelo, M. Severi, E. Fratini, P. Baglioni "pH-Responsive Semi-Interpenetrated Polymer Networks of pHEMA/PAA for the Capture of Copper Ions and Corrosion Removal" *ACS Applied Materials & Interfaces*, 14, 7471-7485 (2022). DOI: 10.1021/acsami.1c22837
2. L. Conti, S. Ciambellotti, G. Giacomazzo, V. Ghini, L. Cosottini, E. Puliti, M. Severi, E. Fratini, F. Cencetti, P. Bruni, B. Valtancoli, C. Giorgi, P. Turano, "Ferritin nanocomposites for selective delivery of photosensitizing ruthenium-polypyridyl compounds to cancer cells" *Inorganic Chemistry Frontiers* XXX, XXXX (2022). DOI: 10.1016/j.physb.2021.413542
3. Y.-H. Chen, C.-X. Xiao, H. Li, E. Fratini, P. Baglioni, S.-H. Chen "Water dynamics in C-S-H and M-S-H cement pastes: A revised jump-diffusion and rotation-diffusion model" *Physica B* 627, 413542 (2022). DOI: 10.1016/j.physb.2021.413542
4. M. Bonini, E. Fratini and A. Faraone "Dynamics of Water and Other Molecular Liquids Confined within Voids and on Surface of Lignin Aggregates in Aging Bio Crude Oils" accepted *Frontiers in Chemistry* 9, 753958 (2021). DOI: 10.3389/fchem.2021.753958
5. A. Scroccarello, F. Della Pelle, D. Rojas, G. Ferraro, E. Fratini, S. Gaggiotti, A. Cichelli, D. Compagnone "Metal nanoparticles based lab-on-paper for phenolic compounds evaluation with no sample pretreatment. Application to extra virgin olive oil samples" *Analytica Chimica Acta* 1183, 338971 (2021). DOI: 10.1016/j.aca.2021.338971
6. G. Ferraro, L. Romei, E. Fratini, S.-H. Chen, U-Ser Jeng, P. Baglioni "Functionalized Nanoclays as Microstructure Modifiers for Calcium and Magnesium Silicate Hydrates" *Phys. Chem. Chem. Phys.* 23, 2630 (2021). DOI: 10.1039/d0cp06251k
7. G. Ferraro, G. Pecori, L. Rosi, L. Bettucci, E. Fratini, D. Casini, A.M. Rizzo, D. Chiaramonti "Influence Of Feedstock And Operational Conditions On Bio-Chars Derived From Lab-Scale Pyrolysis Of Selected Biomasses" *Biomass Conversion and Biorefinery* (2021). DOI: 10.1007/s13399-021-01303-5
8. F. Silveri, F. Della Pelle, D. Rojas, Q. U. A. Bukhari, G. Ferraro, E. Fratini, D. Compagnone "(+)-Catechin-assisted graphene production by sonochemical exfoliation in water. A new redox-active nanomaterial for electromediated sensing" *Microchimica Acta* 188, 369 (2021). DOI: 10.1007/s00604-021-05018-2
9. A. Scroccarello, B. Molina-Hernández, F. Della Pelle, J. Ciancetta, G. Ferraro, E. Fratini, L. Valbonetti, C. Chaves Copez, D. Compagnone "Effect of phenolic compounds-capped AgNPs on growth inhibition of *Aspergillus niger*" *Coll. Surf. B* 199, 111533 (2021). DOI: 10.1016/j.colsurfb.2020.111533
10. A. Scroccarello, F. Della Pelle, G. Ferraro, E. Fratini, F. Tempera, E. Dainese, D. Compagnone, "Plasmonic active film integrating gold/silver nanostructures for H₂O₂ readout" *Talanta* 222, 121682 (2021). DOI: 10.1016/j.talanta.2020.121682.
11. V. Millarini, S. Ignesti, S. Cappelli, G. Ferraro, A. Adessi, B. Zanoni, E. Fratini, P. Domizio "Protection of wine from protein haze using *Schizosaccharomyces japonicus* polysaccharides" *Foods* 9, 1407 (2020). DOI: 10.3390/foods9101407.
12. M.C. Paderes, C. James, J. Scott, A.H. Mai, J.H. Limon, M. Dolatkhani, S. Fernández-Prieto, W.M. de Borggraeve and E. Fratini, "Tuning the Properties of Polyether Alkyl Urea Derivatives as Rheology Modifiers in Cosmetic Solvents" *ACS Appl. Polym. Mater* 2, 2902–2909 (2020). DOI: 10.1021/acsapm.0c00416.
13. M. Mamusa, C. Sofroniou, C. Resta, S. Murgia, E. Fratini, J. Smets, P. Baglioni, "Tuning the encapsulation of simple fragrances with an amphiphilic graft copolymer" *ACS Applied Materials & Interfaces* 12, 28808–28818 (2020). DOI: 10.1021/acsami.0c05892.
14. C.C. Piras, S.A. Jamieson, E. Fratini, W.M. De Borggraeve "Facile method to obtain low DS β -ketoesters and esters of microfibrillated cellulose" *Fibers and Polymers* 21, 2166-2172 (2020). DOI: 10.1007/s12221-020-1021-3.
15. F. Della Pelle, D. Rojas, F. Silveri, G. Ferraro, E. Fratini, A. Scroccarello, A. Escarpa, D. Compagnone "Class-selective voltammetric determination of hydroxycinnamic acids structural analogs by using a WS2/catechin-capped-AuNPs/carbon black based nanocomposite sensor" *Microchimica Acta* 187, 296 (2020). DOI: 10.1007/s00604-020-04281-z.
16. A. Scroccarello, F. Della Pelle, E. Fratini, G. Ferraro, S. Scarano, P. Palladino, D. Compagnone "Colorimetric determination of polyphenols via gold nanoseeds decorated polydopamine film" *Microchimica Acta* 187, 267 (2020). DOI: 10.1007/s00604-020-04228-4.
17. R. Mastrangelo, D. Chelazzi, G. Poggi, E. Fratini, L. Pensabene, M.L. Petruzzellis, P. Baglioni "Twin-chain polymer hydrogels based on poly(vinyl alcohol) as new advanced tool for the cleaning of modern and contemporary art" *PNAS* 117, 7011-7020 (2020). DOI: 10.1073/pnas.1911811117.
18. C. Breschi, L. Guerrini, P. Domizio, G. Ferraro, L. Calamai, V. Canuti, P. Masella, A. Parenti, E. Fratini, G. Fia, B. Zanoni "Physical, Chemical and Biological Characterization of Veiled Extra Virgin Olive Oil Turbidity for Degradation Risk Assessment" *Eur. J. Lipid Sci. Technol.* 121, 1900195 (2019). DOI: 10.1002/ejlt.201900195.
19. D. Noferini, A. Faraone, M. Rossi, E. Mamontov, E. Fratini, P. Baglioni "Disentangling polymer network and hydration water dynamics in pHEMA physical and chemical hydrogels" *J. of Phys. Chem. C.* 123, 19183-19194 (2019). DOI: 10.1021/acs.jpcc.9b04212.
20. M. Savastano, C. Bazzicalupi, G. Ferraro, E. Fratini, P. Gratteri, A. Bianchi "Tales of the unexpected: the case of zirconium(IV) complexes with desferrioxamine" *Molecules* 24, 2098 (2019). DOI: 10.3390/molecules24112098
21. G. Secci, G. Ferraro, E. Fratini, F. Bovera, G. Parisi "Differential Scanning Calorimetry as a fast method to discriminate cage or free-range rabbit meat" *Food Control* 104, 313–317 (2019). DOI: 10.1016/j.foodcont.2019.05.010
22. D. Rojas, F. Della Pelle, M. Del Carlo, E. Fratini, A. Escarpa and D. Compagnone "Nanohybrid carbon black-molybdenum disulfide transducers for o-diphenols electrochemical sensing" *Microchimica Acta* 186, 363. (2019). DOI: 10.1007/s00604-019-3418-5.
23. F. Mallamace, C. Corsaro, D. Mallamace, S.-H. Chen, E. Fratini, P. Baglioni "The Boson Peak Interpretation and Evolution in Confined Amorphous Water" *Science China* 62, 107004 (2019). DOI: 10.1007/s11433-018-9380-x
24. G. Ferraro, E. Fratini "A Simple Synthetic Approach to Prepare Silver Elongated Nanostructures: From Nanorods to Nanowires" *Journal of Chemical Education* 96, 553–557 (2019). DOI: 10.1021/acs.jchemed.8b00628 - Highlighted on the cover of the journal (pubs.acs.org/toc/jceda8/96/3).
25. M. Mamusa, M.C. Arroyo, E. Fratini, R. Giorgi, P. Baglioni "Nonaqueous Microemulsion in the Bmim Tf₂N/Brij 30/n-Nonane System: Structural Investigation and Application as Gold Nanoparticle Microreactor" *Langmuir* 34, 12609–12618 (2018). DOI:

- 10.1021/acs.langmuir.8b02420
26. M. Baglioni, G. Poggi, G. Ciolli, E. Fratini, R. Giorgi and P. Baglioni "A Triton X-100-Based Microemulsion for the Removal of Hydrophobic Materials from Works of Art: SAXS Characterization and Application" *Materials* 11, 1144 (2018). DOI: 10.3390/ma11071144
 27. E. Carretti, L.V. Angelova, C. Matarrese, E. Fratini, R.G. Weiss, P. Baglioni, L. Dei "Chelating agents in aqueous, partially-hydrolyzed, poly(vinyl acetate) dispersions crosslinked with borax. A physico-chemical characterization" *Coll. Surf. A* 556, 61-71 (2018). DOI: 10.1016/j.colsurfa.2018.07.044
 28. M. Baglioni, J.A.L. Domingues, E. Carretti, E. Fratini, D. Chelazzi, R. Giorgi and P. Baglioni "Complex Fluids Confined into Semi-Interpenetrated Chemical Hydrogels for the Cleaning of Classic Art: a Rheological and SAXS Study" *ACS Applied Materials and Interfaces* 10, 19162-19172 (2018). DOI: 10.1021/acsami.8b01841
 29. H.D. Santan, C. James, I. Martínez, E. Fratini, C. Valencia, M.C. Sánchez and J.M. Franco "Elucidation of Structure-Mechanical Property Relationships in Adhesives Derived From Castor Oil" *Industrial Crops and Products* 121, 90-98 (2018). DOI: 10.1016/j.indcrop.2018.05.012
 30. S. Scarano, E. Pascale, P. Palladino, E. Fratini, and M. Minunni "Determination of fermentable sugars in beer wort by gold nanoparticles@polydopamine: a layer-by-layer approach for Localized Surface Plasmon Resonance measurements at fixed wavelength" *Talanta* 183, 24-32 (2018). DOI: 10.1016/j.talanta.2018.02.044
 31. P. Le, E. Fratini, S.-H. Chen, "Hydration-dependent Dynamics of Water in Calcium-Silicate-Hydrate: A QENS Study by Global Model" *Coll. Surf. B* 168, 187-192 (2018). DOI: 10.1016/j.colsurfb.2018.01.039
 32. F. Ridi, M. Tonelli, E. Fratini, S.-H. Chen, P. Baglioni "Water as a probe of the colloidal properties of cement" *Langmuir* 34, 2205-2218 (2018). Feature Article. DOI: 10.1021/acs.langmuir.7b02304 Highlighted on the cover of the journal (pubs.acs.org/toc/langd5/34/6).
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