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FRANCESCO TAVANTI

CURRICULUM VITAE

INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)

COGNOME	TAVANTI
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INSERIRE IL PROPRIO CURRICULUM
(non eccedente le 30 pagine)

FRANCESCO TAVANTI



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24 august 1986, Italian

Papers published: 21 h-index: 9 citations: 267 source: Scopus (March 2021)

ACADEMIC EXPERIENCE

15/01/2020-now research fellow in the group of Dr. Calzolari A.

CNR Nano, Modena (Italy).

01/01/2017-31/12/2019 post-doc in the group of Prof. Menziani M. C.

University of Modena and Reggio Emilia, Modena (Italy), <http://www.unimore.it>

2014-2016 PhD student in Models and Methods for Material and Environmental Sciences

University of Modena and Reggio Emilia, Modena (Italy), <http://www.unimore>

02/06/2015- Visiting student at Massachusetts Institute of Technology

01/11/2015 Department of Materials Sciences and Engineering, MIT, <https://dmse.mit.edu>

2013 M. Sc. In Physics at University of Pisa

PUBLISHED PAPERS

1. **F. Tavanti**, A. Pedone, M. C. Menziani, "Disclosing the interaction of Gold Nanoparticles with A β (1-40) monomers through Replica Exchange Molecular Dynamics Simulations", *IJMS*, 2021, **22**, 26.
2. **F. Tavanti**, A. Pedone, M. C. Menziani, A. Alexander-Katz, "Computational Insights into the Binding of Monolayer-Capped Gold Nanoparticles onto Amyloid- β Fibrils", *ACS Chem. Neuro.*, 2020, **11**, 3153-3160.
3. **F. Tavanti**, B. Dianat, A. Catellani, A. Calzolari, "Hierarchical Short- and Medium-Range Order Structures in Amorphous Ge_xSe_{1-x} for Selectors Applications", *ACS Appl. El. Mater.* 2020, **2**, 2961-2969.
4. Cendrowska U., Jacob Silva P., Ait-Bouziad N., Mueller M., Pelin Guven Z., Vieweg S., Chiki A., Radamaker L., Thangaraj S., Faendrich M., **Tavanti F.**, Menziani M. C., Alexander-Katz A., Stellacci F., Lashuel H. A. "Unraveling the Complexity of Amyloid Polymorphism Using Gold Nanoparticles and Cryo-EM". *PNAS*, 2020, **117**, 6866-6874.
5. Paolino M., Visintin M., Margotti E., Visentin M., Salvini L., Reale A., Razzano V., Giuliani G., Caselli G., **Tavanti F.**, Menziani M. C., Cappelli A. Functionalization of Protein Hexahistidine Tags by Functional Nanoreactors. *New J. Chem.*, 2019, **43**, 17946-17953.
6. **F. Tavanti**, A. Pedone, M. C. Menziani. "Multiscale Molecular Dynamics Simulations of Multiple Protein Adsorption on Gold Nanoparticles", *Int. J. Mol. Sci.*, 2019, **20**, 3539.
7. Proshinka G., Deyev S., Ryabova A., **Tavanti F.**, Menziani M. C., Cohen R., Katrivas L, Kotlyar A. B. "DARPin₉₋₂₉-Targeted Mini Gold Nanorods Specifically Eliminate HER2-overexpressing Cancer Cells", *ACS Applied Materials and Interfaces*, 2019, **11**, 34645-34651.
8. Steiner M., Brandl B., Franchi D., **Tavanti F.**, Dutzler J., Hochfilzer D., Menia D. "Presenting Your Research to a Broad Audience", *Chemistry Views*, 2019, doi: [10.1002/chemv.201900037](https://doi.org/10.1002/chemv.201900037).
9. M. Paolino, A. Reale, V. Razzano, G. Giuliani, A. Donati, C. Bonechi, G. Caselli, M. Visintin, F. Makovec, C. Scialabba, M. Licciardi, E. Paccagnini, M. Gentile, L. Salvini, **F. Tavanti**, M. C. Menziani, A. Cappelli, "Nanoreactors for the Multi-Functionanlization of Poly-Histidine Fragments, *New J. Chem.*, 2019, **43**, 6834-6837.
10. A. Pedone, **F. Tavanti**, G. Malavasi, M. C. Menziani, "An atomic-level look at the structure-property relationship of cerium-doped glasses using classical molecular dynamics", *J. Non.Cryst. Sol.*, 2018, **498**, 331-337.
11. G. Orteca, **F. Tavanti**, Z. Bednarikova, Z. Gazova, G. Rigillo, C. Imbriano, V. Basile, M. Asti, L. Rigamonti, M. Saladini, E. Ferrari, M. C. Menziani, "Curcumin derivatives and A β -fibrillar aggregates: An interactions' study for diagnostic/therapeutic purpose in neurodegenerative diseases", *Bioorg. Med. Chem.*, 2018, **26**, 4288-4300.
12. **F. Tavanti**, A. Pedone, M. C. Menziani, "Computational insight into the effect of natural compounds on the destabilization of preformed amyloid- β (1-40) fibrils", *Molecules*, 2018, **23**, 1320.
13. **F. Tavanti**, F. Muniz-Miranda, A. Pedone, "The Effect of Alkaline Cations on the Intercalation of Carbon Dioxide in Sepiolite Minerals: A Molecular Dynamics Investigation", *Frontiers in Materials*, 2018, **5**, 12.
14. D. Malferrari, F. Bernini, **F. Tavanti**, L. Tuccio, A. Pedone, "Experimental and molecular dynamics investigation proves that montmorillonite trap the biogenic amines histamine and tyramine", *J. Phys. Chem. C*, 2017, **121**, 27493-27503.
15. **F. Tavanti**, A. Pedone, P. Matteini, M. C. Menziani, "Computational Insight into the Interaction of Cytochrome c with Wet and PVP-Coated Ag Surfaces", *J. Phys. Chem. B*, 2017, **121**, 9532–9540.
16. S. Deyev, G. Proshkina, A. Ryabova, **F. Tavanti**, M. C. Menziani, G. Eidelstein, G. Avishai, A. B Kotlyar, "Synthesis, CHaracterization and Selective Delivery of DARPin Gold Nanoparticles Conjugates to Cancer Cells", *Bioconjugate Chemistry*, 2017, **28**, 2569-2574.

17. P. Matteini, M. Cottat, **F. Tavanti**, E. Panfilova, M. Scuderi, G. Nicotra, M. C. Menziani, N. Khlebtsov, M. de Angelis, R. Pini, "Site-selective surface-enhanced Raman detection of proteins", *ACS Nano*, 2017, **11**, 918-926.
18. F. Muniz-Miranda, F. Lodesani, **F. Tavanti**, D. Presti, D. Malferrari, A. Pedone, "Supercritical CO₂ Confined in Palygorskite and Sepiolite minerals: A Classical Molecular Dynamics Investigation", *J. Phys. Chem. C*, 2016, **120**, 26945-26954.
19. **F. Tavanti**, A. Pedone, M. C. Menziani, "Competitive Binding of Proteins to Gold Nanoparticles disclosed by Molecular Dynamics Simulations", *J. Phys. Chem. C*, 2015, **119**, 22172-22180.
20. **F. Tavanti**, A. Pedone, M. C. Menziani, "A closer look into the ubiquitin corona on gold nanoparticles by computational studies", *New J. Chem.*, 2015, **39**, 2474-2482.
21. **F. Tavanti**, V. Tozzini, "A Multi-Scale--Multi-Stable model for the Rhodopsin Photocycle", *Molecules*, 2014, **19**, 14961-14978.

FUNDINGS

Principal investigator and coordinator of the research project funded by University di Modena e Reggio Emilia: **FAR2018-Junior 2018** "Computer-aided Rational Design of Functionalized Gold Nanoparticles as Inhibitors of Amyloid- β Oligomerization for Alzheimer's Disease Treatment", 32K€.

EDITORIAL BOARD

Guest editor of the special issue "Advances in Nanoparticles-Biomolecules Interactions" in the International Journal of Molecular Sciences, MDPI, IF=4.556.

TALKS

1. **Tavanti F.**, Dianat B. Catellani A., Calzolari A., "Amorphous Ge_xSe_{1-x} and its hierarchical structures by mean of molecular dynamics simulations", APS March Meeting, online, 16/03/2021.
2. **Tavanti F.**, Pedone, A., Menziani, M. C. "Computational Simulations of the interaction between Gold Nanoparticles and Biological Medium", CECAM workshop Biomolecular mechanisms at functionalized solid surfaces, Paris, 14-17 May 2019.
3. **Tavanti F.**, Pedone, A., Menziani, M. C., "Gold Nanoparticles as Amyloid- β fibril inhibitors", Extended Software Development Workshop (ESDW) at E-CAM, Lyon, 09 April 2019.
4. **Tavanti F.**, "CHI (ri)CERCA, TROVA", scientific disclosure at secondary school G. Marcelli, Foiano della Chiana (Ar), Italy, 23 March 2019.
5. **Tavanti, F.**, Pedone, A., Menziani, M. C., "Understanding the Gold Nanoparticles-Proteins Interactions by Molecular Dynamics Simulations", Molecular Dynamics Today MD2 meeting, Bologna, Italy, March 14-15 2019.
6. **Tavanti, F.**, Ferrari E., Pedone, A., Menziani, M. C. "Computational Study of Curcumin-derivatives for Alzheimer's Disease Treatment", Italian Chemical Society, Paestum (Sa), Italy, September 10-14 2017.
7. **Tavanti, F.**, Pedone, A., Menziani, M. C. "*Specific Interactions of Gold Nanoparticles with Amyloid- β fibrils*". Italian Chemical Society, DCTC 2015, Rome, Italy, December 14-16, 2015.
8. **Tavanti, F.**, Pedone, A., Menziani, M. C. "*Monolayer-protected Gold Nanoparticles interacting with Amyloid- β fibrils: a Computational Study*". Giornata della Chimica dell'Emilia Romagna, Modena, Italy, December 18, 2015.

PRIZES

1. **One of the best 10** papers published by a young chemist (under 35) in Italy during the Primo Levi prize 2017 of Italian Chemical Society.

2. **Mention** for the most popular video during the Primo Levi 2017 prize
3. **Winner** of “Present your research in 150 seconds” of ChemPubSoc Europe e Young group of the Austrian Chemistry Association.

POSTERS & ATTENDED SCHOOLS

1. Molecular Dynamics Today MD2 meeting (14-15 March 2019) Bologna (IT) with title: “Understanding the Gold Nanoparticles-Proteins Interactions by Molecular Dynamics Simulations”.
 2. Italian Chemical Society, DCTC2018 (19/09/2018 – 21/09/2018), Trieste (IT) with title: ‘Natural compounds for Alzheimer’s disease treatment: a classical Molecular Dynamics investigation’
 3. Italian Chemical Society 2017 (10/09/2017 – 14/09/2017), Paestum (IT) with title: ‘Molecular Dynamics Simulations of Amyloid-beta fibrils for Alzheimer’s Theranostic Applications’
 4. Multiscale Modelling of Condensed Phase and Biological Systems (13/04/2016 – 15/04/2016) Manchester (UK) with title: ‘Monolayer-protected Gold Nanoparticles interacting with Amyloid Fibrils’.
 5. Giornata della chimica dell'Emilia Romagna (18/12/2014) Parma (IT) with title: 'Ubiquitins on gold nanoparticles: a molecular dynamics simulation'.
 6. CCP5 Summer School in Molecular Modelling (13/07/2014 – 22/07/2014) Manchester (UK) with title: 'Computational Modeling of Ubiquitin-Corona Formation on Gold Nanoparticles'.
 7. Winter Modeling 2014 (13/04/2014 - 14/04/2014) Modena (IT) with title: 'Computational Modeling of Protein-Nanoparticle Interactions'.
- I. CECAM workshop Biomolecular mechanisms at functionalized solid surfaces, Paris, 14-17 May 2019.
 - II. Machine Learning for Material Sciences, Helsinki, 06-10 May 2019.
 - III. Extended Software Development Workshop (ESDW) at E-CAM, Lyon, 03-12 April 2019.
 - IV. CCP5 Summer School in Molecular Modelling: 'Methods in molecular simulations' (13/07/2014 – 22/07/2014) Manchester (UK). Advanced course in 'Meso-scale Methods'.

JOURNAL'S COVER

Tavanti, F., ACS Chemical Neurosciences, vol. 11, issue 19, 2020.

Tavanti, F., Bioconjugate Chemistry, vol. 28, issue 10, 2017.

PROJECTS for accessing High Performance Computing resources

1. PRACE-ICEI (2020), Structural features of novel chalcogenides for passive memory applications”, 5Mhrs @ JUSUF (DE), PI.
2. ISCRA-C grant (2020): Molecular dynamics to elucidate the structure of amorphous GeSe systems, Marconi@CINECA (Tier 1); 5.4Khrs, PI.
3. ISCRA-C grant (2017): Curcumin-like compounds for Amyloid Inhibition, Marconi@CINECA (Tier 1); 26Khrs, PI.
4. PRACE – Preparatory Access (2016): Insight into Silver Nanocube-protein interaction by computational simulations, Fermi@CINECA (Tier 0), 100Khrs; MareNostrum@BSC-CNS (Tier 0), 50Khrs; coll.
5. ISCRA-C grant (2016): Gold nanoparticles interacting with Alzheimer’s fibrils, Galileo@CINECA (Tier 1), 35Khrs; PI
6. ISCRA-C grant (2015): Proteins corona formation on gold nanoparticles, Galileo@CINECA (Tier 1), 75Khrs; PI

TEACHING

2016 - 2019 “Hands on” computational exercises for the course “Chimica computazionale” held by Prof. Menziani M. C. Course of Master’s degree in Chemistry, University of Modena and Reggio Emilia.

2019 “Hands on” computational exercises for the course “Chimica fisica e spettroscopia molecolare” held by Prof. Menziani M. C. Course of Master’s degree in Chemistry, University of Modena and Reggio Emilia.

REFERRING ACTIVITY

Since 2016, I've been assigned review duty by

- *MDPI International Journal of Molecular Sciences*
- *RSC Advances*
- *MDPI Materials*
- *MDPI Metals*
- *MDPI Journal of Molecular Liquids*
- *MDPI Entropy*
- *MDPI Viruses*
- *MDPI Cells*
- *MDPI Applied Sciences*
- *MDPI Biomolecules*
- *Hindawi Oxidative Medicine and Cellular Longevity*
- *MDPI Lubricants*
- *J. Graph Model.*

REFERENCES

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Alfonso Pedone, Professor of Chemistry at the University of Modena and Reggio Emilia, alfonso.pedone@unimore.it

Valentina Tozzini, Scientist at the NEST-CNR-Nanoscience Institute at Scuola Normale Superiore, Pisa, v.tozzini@sns.it

Alfredo Alexander-Katz, Walter Henry Gale Associate Professor at Massachusetts Institute of Technology, Cambridge, MA, aalexand@mit.edu

March, 2021

Data

17/03/2021

Luogo

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