europass Curriculum vitae

PERSONAL INFORMATION

Andrea Piserchia

(Italy)

andrea.piserchia@sns.it

Skype pischio.ankh

Sex Male | Date of birth 19/12/1989 | Nationality Italian

EDUCATION AND TRAINING

01/11/2014–Present

Ph.D. in Methods and Models for the Molecular Sciences

Scuola Normale Superiore, Pisa (Italy)

My research activity mainly rooted into the branches of statistical thermodynamics and stochastic processes is devoted to develop and implement new theoretical/computational integrated methodologies finalized to the study and characterization of dynamics at molecular level. The aim is to simulate spectroscopic observables.

10/03/2014–09/09/2014

Scolarship, contract co.co.co (Research project ERC-StG 2010 - MOSAIC - "Patterning the surface of monolayer-protected nanoparticles to obtain intelligent nanodevice")

Università degli studi di Padova, Padua (Italy)

Title of research activity: "Development of computatioanl methods for the study of dynamics of monolayers of thiols on gold nanoparticles".

During this period of computational chemistry research activity, I've used and developed the methodologies that i've learnt before, during the master thesis period, and I've applied them to gold nanoparticles covered by thiols monolayers.

Supervisor: Prof. Fabrizio Mancin

13/03/2014–14/03/2014

Partecipation and poster presentation at Winter Modeling Workshop 2014 (Modena)

Università degli studi di Modena e Reggio Emilia, Modena (Italy)

In addition to the partecipation to the workshop, in the same place I've presented a poster concerning the main features of free energy computations simulating non-equilibrium trajectories and using Jarzynski's identity; and the functioning of JEFREE software used for these purposes.

2011–2013

Master's degree in Chemistry

Università degli studi di Padova, Padua (Italy)

Master's degree thesis: "Free energy computations for complex molecular systems by means of non-equilibrium methods: development of a new computational strategy with application to alkyl-thiols tethered to gold surfaces".

The thesis work, computational chemistry like, has given me the opportunity to develop and acquire basic knowledges concerning statistical non-equilibrium theories based on Jarzynski identity for the description of both the energetics and dynamics of molecular systems.

Supervisor: Dr. Diego Frezzato

Achievement date: 12/12/2013

Final vote: 110 (over 110)

2008–2011

Bachelor's degree in Chemistry

Università degli studi di Padova, Padova (Italy)

Bachelor's degree thesis: "Numerical solution to one-dimensional diffusion equation with application

to conformational dynamics in *n*-butane and similar molecules".

This period has given me the opportunity to acquire the principal basic knowledges concerning stochastic processes (in particular, activated processes). It also has given me the mathematical and physical bases in order to face numerical methods devoted to the solution of partial differential equations (e.g. Smoluchowski, Schrodinger).

Supervisor: Dr. Diego Frezzato

Achievement date: 15/11/2011

Final vote: 103 (over 110)

2003–2008

High-School Diploma

Istituto Tecnico Industriale Statale, Francesco Severi, Padova (Italy)

Diploma achievement date: 01/07/2008

Final vote: 82 (over 100)

Publications

(1) M. Zerbetto, A. Piserchia, D. Frezzato, "Looking for some free energy? CALL JEFREE(...)", *J. Comp. Chem.*, **35**, 1865-1881 (2014).

(2) M. Zerbetto, A. Piserchia, D. Frezzato, "Probing the conformational energetics of alkyl thiols on gold surfaces by means of a morphing/steering nonequilibrium tools", *Phys. Chem. Chem. Phys.*, **17**, 8038 (2015).

(3) A. Piserchia, M. Zerbetto, M.-V. Salvia, G. Salassa, L. Gabrielli, F. Mancin, F. Rastrelli, D. Frezzato, "Conformational mobility in monolayer-protected nanoparticles: from torsional free energy profiles to NMR relaxation", *J. Phys. Chem. C*, **119**, 20100-20110 (2015).

(4) A. Piserchia, V. Barone, "Discrete variable representation of the Smoluchowski equation using a sinc basis set", *Phys. Chem. Chem. Phys.*, **17**, 17362-17374 (2015).

(5) A. Piserchia, V. Barone, "Toward a general yet effective computational approach for diffusive problems: variable diffusion tensor and DVR solution of the Smoluchowski equation along a general one-dimensional coordinate", *J. Chem. Theory Comput.*, **12**, 3482-3490 (2016).

(6) F. A. Gianturco, M. Satta, M. Mendolicchio, F. Palazzetti, A. Piserchia, V. Barone, R. Wester, "Exploring a chemical route for the formation of stable anions of polyynes [C_nH^- (*n*=2,4)] in molecular clouds", *Astrophys. J.*, **830**, 2 (2016).

(7) V. Barone, J. A. Gyamfi, A. Piserchia; "Status and perspectives of a virtual multifrequency spectrometer for ESR", Special Periodical Reports (RSC), *accepted.*

PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B1	B1	B1	B1
	Preliminary English Test (PET) B1				

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Digital competence

Good general computer science knowledges.

Operative Systems: Good knowledge of Windows and Linux.

Office Suite: Good knowledge of Microsoft Software pack (Word, Excel, Powerpoint) and Openoffice.

Scientific programs: Good knowledge of Origin software for data analysis.

Internet: Good knowledge of World Wide Web, good knowledge of Firefox and other browsing

software.

Practical experience on bibliographic research of books and scientific papers.

Programming languages: Good knowledge of C++, FORTRAN77, HTML.