Andrea Pérez-Villa | Curriculum Vitae

IMPMC, Sorbonne Université – 4 Place Jussieu, Barre 13-23 407, 75005 Paris

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Personal Information

Date of birth : 4 March 1988
Citizenship : Colombian
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Education

- **Scuola Internazionale Superiore di Studi Avanzati, SISSA** — **Trieste, Italy**
  PhD in Physics and Chemistry of Biological Systems — *October 2015*
  Thesis: Translocation of NS3 from Hepatitis C Virus on RNA: Insights from Atomistic Molecular Simulations
  Supervisor: Prof. Giovanni Bussi

- **Universidad de Antioquia** — **Medellín, Colombia**
  University degree in Chemistry, mention special — *July 2011*
  Thesis: Relativistic Effects on the Actinides Hexafluorides
  Supervisors: Prof. Albeiro Restrepo, Prof. Jorge David

Working experience

Teaching

- **Scuola Internazionale Superiore di Studi Avanzati, SISSA** — **Trieste, Italy**
  Visitor teacher, PhD program in Physics and Chemistry of Biological Systems — *November 2015*
  Course "Introduction to Chemistry" (10h + exam)

- **Universidad de Antioquia, Insituto de Química** — **Medellín, Colombia**
  Teaching assistant in organic chemistry lab. — *August 2010 – June 2011*
  Organic chemistry lab. (128 h)

Research

- **Sorbonne Université** — **Paris, France**
  Postdoctoral researcher, IMPMC — *December 2015 – ongoing*
  Supervisors: Prof. Fabio Pietrucci, Prof. A. Marco Saitta.

- **Scuola Internazionale Superiore di Studi Avanzati, SISSA** — **Trieste, Italy**
  PhD fellowship, Molecular and statistical biophysics group — *November 2011 – October 2015*
  Supervisor: Prof. Giovanni Bussi

Other activities

- **Conference of Computational Physics - CCP 2017** — **Paris, France**
  Logistic organizer — *July 2017*

- **Scuola Internazionale Superiore di Studi Avanzati, SISSA** — **Trieste, Italy**
  Webmaster, Molecular and statistical biophysics group — *January 2013 - October 2015*

- **Scuola Internazionale Superiore di Studi Avanzati, SISSA** — **Trieste, Italy**
  Library staff, SISSA Library — *January 2013 - October 2015*

Publications

1. A. Pérez-Villa, F. Pietrucci, Free energy, friction, and mass profiles from short molecular dynamics trajectories *arXiv preprint*, (arXiv:1810.00713) **2018**
2. A. Pérez-Villa, F. Pietrucci, A. M. Saitta. Prebiotic chemistry and origins of life research with atomistic computer simulations *Phys. Life Rev.* in press, DOI: 10.1016/j.plrev.2018.09.004 **2018**
3. A. Pérez-Villa, A. M. Saitta, T. Georgelin, J-F. Lambert, F. Guyot, M-C. Maurel, F. Pietrucci, Synthesis of RNA Nucleotides in Plausible Prebiotic Conditions from ab Initio Computer Simulations. *J. Phys. Chem. Lett.* 9 (17), p 4981-4987, **2018**
4. F. Pietrucci, J. C. Aponte, R. D. Starr, A. Pérez-Villa, J. E. Elsila, J. P. Dworkin, A. M. Saitta. Hydrothermal Decomposition of Amino Acids and Origins of Prebiotic Meteoritic Organic Compounds. *ACS Earth Space Chem.* 2 (6), p 588-598, **2018**
5. A. Pérez-Villa, M. Darvas, G. Bussi. ATP dependent NS3 helicase interaction with RNA: Insights from molecular simulations. *Nucl. Acids Res.* 43 (18), p 8725-8734, **2015**
6. M. J. Ferrarotti, S. Bottaro, A. Pérez-Villa, Bussi. Accurate multiple time step in biased molecular simulations. *J. Chem. Theory Comput.*11 (1), p 139-146, **2015**
7. A. Pérez-Villa, J. David, P. Fuentalba, A. Restrepo. Octahedral Complexes of the Series of Actinides Hexafluorides AnF_6. *Chem. Phys. Lett.* 507, p 57-62, **2011**

Participation to Conferences

1. *RNA Symposium 2018 - RNAs, Ready for the Future?*. Paris, France. Dec. 2018. **Oral**.
2. *Molecular Origins of Life – CAS Conference 2018*. Munich, Germany. Oct. 2018. **Poster**.
3. *Gordon Conference and Seminar "Origins of life"*. Galveston (Texas), États-Unis. Jan. 2018. **Poster**.
4. *XVIII - ISSOL 2017*. San Diego (Californie), États-Unis. Jul. 2017. **Poster**.
5. *CCP 2017*. Paris, France. Jul. 2017. **Oral**.
6. *AbSciCon 2017*. Mesa (Arizona), États-Unis. May 2017. **Oral**.
7. *DPG 2017*. Dresden, Allemagne. Mar. 2017. **Poster**.
8. *STC 2016 - Chemistry in Solution*. Bochum, Allemagne. Sep. 2016. **Oral**.
9. *CECAM workshop. Atomistic simulations in prebiotic chemistry*. Paris, France. Jul. 2016. **Oral**.
10. *CECAM workshop. From trajectories to reaction coordinates*. Vienne, Autriche. Sep. 2015. **Poster**.
11. *249th ACS National Meeting*. Denver (Colorado), États-Unis. Mar. 2015. **Oral**.
12. *Modeling of Biomolecular Systems: Interactions, Dynamics, and Allostery*. Istanbul, Turchie. Sep. 2014. **Poster**.
13. *EMBO conference: Helicases and Nucleic Acid Translocases*. Cambridge, Angleterre. Aug. 2013. **Poster**.
14. *Computational Biology: Then and Now*. Rehovot, Israel. May 2013. **Poster**.
15. *III Encuentro Nal. Químicos Teóricos y Computacionales*. San Gil (Santander), Colombie. May 2010. **Oral**.

Invited presentations

- RNA symposium 2018 - *Musée national d'histoire naturelle & Sorbonne Université* (Paris, 7 Dec. 2018)
- Joint seminar in biophysics - *ENS-ESPCI* (Paris, 28 Oct. 2016)
- Seminar in biophysics - *Laboratoire de Biochimie, ESPCI* (Paris, 1 Jun. 2016)

Technical skills

- OS: Linux, Macintosh, Windows.
- Working knowledge of fortran, octave, bash, awk.
- Softwares of molecular dynamics and electronic structure: Gromacs, Plumed, CPMD, ADF, Orca.
- Scientific programs: Xmgrace, LaTeX, gnuplot, GaussView, VMD, chimera, matplotlib.
- Graphic tools: GIMP, Photoshop.
- Working knowledge of html and php.
- Languages : Spanish (native), English (advanced), Italian (advanced), French (advanced).

Academic awards

- Travel grant to participate in "EMBO conference: Helicases and Nucleic Acid Translocases" Cambridge, England. Biochemical society, 2013.
- Travel grant to participate in "Computational Biology: Then and Now" Rehovot, Israel. Weizmann Institute of Science, 2013.
- Honorific tuition waiver for undergraduate chemistry program, Medellín, Colombia. Universidad de Antioquia, Semesters: 2005-S2, 2006-S1, 2007-S1, 2011-S1.

HPC projects

- Co-investigator in Genci project. Iréne, TGCC-CEA (Bruyères-le-Châtel, France). Nov. 2018 - Nov. 2019 (1.3 + 3.0 millions CPU hours)
- Co-investigator in PRACE project. MareNostrum4, BSC (Barcelone, Spain). Apr. 2017 - Mar. 2018 (5.0 millions CPU hours)
- Co-investigator in Genci project. Curie, TGCC-CEA (Bruyères-le-Châtel, France). May 2016 - Aug. 2016 (5.5 millions CPU hours)
- Co-investigator in ISCRA project. Fermi BlueGene, CINECA (Casalecchio di Reno, Italie). Mar. 2013 - Mar. 2014 (4.0 millions CPU hours)

Leisure activities

Tennis, photography (digital and analog), illustration, painting, entomology, scuba diving, biking.