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PhD in Biophysics

*PhD student from 01/09/2012 in the LPT & IPBS
labs, CNRS (Toulouse-France), defense expected at
the end of October*

**Keywords : Single molecule approaches,
Kinetic Monte-Carlo simulation, statistical
physics, DNA dynamics, soft matter**



Nationality: French
Driver's license, B

SKILLS

Modeling	Microscopy
Approach : Dynamic Kinetic Monte-Carlo simulation	Techniques : STM, MEB, fluorescence and dark field microscopy
Data analyses procedure	Analysis : ImageJ
Developing an computing procedure to check the physical coherence (symmetry factor, correlation function) of gigaoctet of raws data and to applied first step of analyses	Characterization technique
Informatics	DLS, Zetasizer, UV spectroscopy, quantification PCR
Tools : Mathematica, Matlab, Labview, Scribus (PAO), Pymol, gnuplot, office tools	Surface treatment process
Languages : Fortran, C, R, LaTeX, Beamer, bash	Chemical treatment : epoxydation, thiolisation, piranha
Office tools : GIMP, Inkscape, Microsoft office and OpenOffice (type Word, Exel, Powerpoint)	Physical treatment : Plasma cleaner, UV ozone
Systems : Linux (Ubuntu), Windows	Method : spin coating, deposit convective self-assembly
	Languages
	English : TOEIC Score 775
	German : Conversational basics

TRAINING AND DIPLOMAS

2012-Now	PhD in Physics (defense planned the October 16th 2015) Specialty : Physics Single molecule study of DNA molecules conformations with local defects or under a large set of physicochemical conditions - Advisor : Destainville N. (LPT) and Tardin C. (IPBS) <ul style="list-style-type: none"> Measuring the impact of intrinsic bending, local denaturation or variation of ion concentration in solution on the DNA conformations with high-throughput Tethered Particle Motion (HT-TPM) Performing a kinetic Monte-Carlo Simulations based on a mesoscopic statistical model of DNA Developing a computational procedure for the analysis of the large data sets from HT-TPM 	University of Toulouse III (France) LPT and IPBS, CNRS, Toulouse
2011-2012	Master 2 Research, Specialty : Nanosciences, Nanomesures Master's training period in nanotechnologies (6 months) Formation of nano-energetic material made of Al/CuO alloy driven by DNA auto-assembly and chip integration – Advisor : Bancaud A. and Rossi C. <ul style="list-style-type: none"> Constructing heterogeneous advanced material structured on 1D, 2D or 3D by using the complementarity of the double strand DNA, and optimize its stability and its energetic response 	University of Toulouse III (France) LAAS-CNRS, Toulouse (France)
2010-2011	Master 1, Specialty : Fundamental Physics Master's training period in microscopy (2 months) Studies of the 2-(3-perylene) ethanoic acid molecular by Scanning Tunneling Microscopy (STM) at Low Temperature and Ultra High Vacuum – Advisor : Coratger R. <ul style="list-style-type: none"> Measure the value of the single negative charge appearing during the process 	University of Toulouse III (France) CEMES-CNRS, Toulouse (France)
2009-2010	Licence 3, Specialty : Physics and Applications Training period at the Braley company Realization of a solar furnace coupled with a Stirling engine <ul style="list-style-type: none"> Realizing the solar furnace and animating a stand on the energies at the open day of the company 	University of Toulouse III (France) Braley Company, Bozouls (France)

SCIENTIFIC PUBLICATIONS

2015	Brunet, A., Tardin, C., Salomé, L., Rousseau, P., Destainville, N., Manghi, M., Dependence of DNA persistence length on ionic strength of solutions with monovalent and divalent salts: a joint theory-experiment study, Macromolecule, 2015, 48 (11), pp 3641–3652, DOI : 10.1021/acs.macromol.5b00735
2015	Brunet, A., Chevalier, S., Destainville, N., Manghi, M., Rousseau, P., Salhi, M., Salomé, L., Tardin, C., Probing a label-free local bend in DNA by single molecule tethered particle motion, Nucleic acids research, 2015, DOI : 10.1093/nar/gkv201
In preparation	Brunet, A., S., Destainville, N., Manghi, M., Rousseau, P., Salomé, L., Tardin, C., Dependence of DNA apparent length and persistence length on temperature of solutions, a joint theory-experiment study

CONGRESSES AND THEMATIC SCHOOLS

Oral Communications

November 2014	3 rd meeting of FRBT – Toulouse (France) ,
May 2013	3 rd edition of the “Les Houches School” in computational physics: DNA, from molecules to evolution – Les Houches (France)

Thematic Schools

August 2014	Summer school : SOFT-FIRE-2014 – Cargèse (France) , (2 weeks)
May 2013	3 rd edition of the “Les Houches School” in computational physics: DNA, from molecules to evolution – Les Houches (France) , (2 weeks)

Poster Communications

8-14 Aout 2015	Gordon Research Conference (GRC) : Soft Condensed Matter Physics - New London (USA)
August 2014	Summer school : SOFT-FIRE-2014 – Cargèse (France)
May 2013	GDR Cell Tiss 2013 - Lyon (France)
May 2013	3 rd edition of the “Les Houches School” in computational physics: DNA, from molecules to evolution – Les Houches (France)

Seminars

January 2014	Seminar IRSAMC – Toulouse (France) ,
August	Gordon Research Seminar (GRS) : Soft Condensed Matter Physics - New London (USA)

STUDENT SUPERVISION

Master's training period : Juliette Wilhem		(2 months)
Summer 2014	Probing the experimental effect of the ionic strength on the DNA conformation release by TPM, at the single molecule level	

REFERENCES

Pr. Destainville Nicolas

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Paris, France

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OTHER ACTIVITIES AND INTERESTS

Other professional experience

2012	Technical staff at the Symposium J of l'E-MRS 2012 Spring Meeting - Strasbourg (France)
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Associative activities :

Since 2009	Co-founder and editor of the inter-university newspaper : <i>Le Lapin Blanc</i> – University of Toulouse I, II and III (France)
2007-2008	University of Toulouse III site organizer for the AMIDONS association – Inter- university Association for donation of blood – University of Toulouse III (France)
Since 2006	AMIDONS association volunteer - Toulouse (France)
2003	First aid qualification - <i>Attestation de Formation aux Premiers Secours</i> - Œuvre hospitalière française de l'ordre de Malte (France)

Entertainment : Reading (Polar, Heroic fantasy, Anticipation), climbing, volleyball, badminton, cinema, theater, rugby