

Doriane Vesperini

PhD in Biomechanics

Research fellow in Biophysics at the Institut of New Materials, Saarbrücken
Lautenshläger's group, Cytoskeletal Fibers.



Date of birth: 04 July 1992

Phone: +49 (0)6.81.93.00.372;

Email: doriane.vesperini@leibniz-inm.de

Education

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| University of Technology of Compiègne (UTC), Sorbonne Universités | Compiègne, France |
| • PhD student, Biomechanics | Oct. 2015 - Oct. 2018 |
| Defense the 10 th Oct. 2018 | |
| University of Technology of Troyes (UTT) | Troyes, France |
| • Material Engineer | Spring 2015 |
| Tampere University of Technology (TUT) | Tampere, Finland |
| • Erasmus semester | Spring 2014 |

Relevant Experiences

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| University of Saarland, INM Leibniz Institute for New Materials | Saarbrücken, Germany |
| • Postdoc, Research Fellow | Nov. 2018 - present |
| Supervisor : Franziska Lautenshläger | |
| – Immune cell migration in pillar forests | |
| – Vimentin in generation of forces in immune cells | |
| University of Saarland, INM Leibniz Institute for New Materials | Saarbrücken, Germany |
| • PhD student guest - DAAD grant | Jan. 2018 - Mar. 2018 |
| Supervisor : Franziska Lautenshläger | |
| – Confocal microscopy on elongated megakaryocytes in microfluidic channels | |
| – Develop laser ablation to characterize the biomechanics involved in the elongated filament | |
| – AFM characterization of the megakaryocyte cell line: DAMI | |
| University of Technology of Compiègne, Laboratory of BioMechanics and BioEngineering (BMBI) | Compiègne, France |
| • PhD Candidate | Oct. 2015- Oct. 2018 |
| Supervisor: Anne Le Goff | |
| – Microfluidics sorting of megakaryocytes, application to <i>in vitro</i> platelet production | |
| – Develop a microfluidic device able to sort micro-objects (capsules and cells) according to their mechanical properties | |
| – Perform high resolution measurements of trajectories into the microfluidic sorter | |
| University of Technology of Compiègne | Compiègne, France |
| • Teaching Assistant | Sept. 2016 - Jun. 2018 |
| – Introduction to fluid mechanics | |
| – Bioartificial organs | |
| Ecole Normale Supérieure (ENS), laboratory of physics | Lyon, France |
| • Research assistant | Feb. 2015 - July 2015 |
| Supervisors : Lotfi Berguiga and Françoise Argoul | |
| – Microfluidics characterisation of the deformability of leukocytes, application: help to diagnose acute leukemia | |

- Surface plasmon resonance microscopy was used to detect cell response to a mechanical stress in a constriction
- Key words: biotechnology, microfluidics, cell mechanics

University of Technology of Troyes, Laboratory of Nanotechnology, Instrumentation and Optics (LNIO) Troyes, France
 Sept. 2014 - Jan. 2015

• **Research project**

Supervisor : Rodolphe Jaffiol

- Fluorescent labeling of standard tumor cells U-87 MG and study of their adhesion to different substrates
- Key words: TIRF microscopy, cell adhesion

Commissariat des Energies Atomiques et Alternatives, CEA

Cadarache, France
 Jul. 2013 - Dec. 2013

• **Process Engineer**

Supervisor : Christophe Roubaud

- Welding study on stainless steel for the prototype of the fast neutron reactor ASTRID
- Physical and chemical characterizations of materials

Teaching

Université de Technologie de Compiègne

Compiègne, France
 Sept. 2016 - Juin 2018

• **Teacher assistant**

- Bioartificial Organs
- Introduction to fluid mechanics
- Microfluidics

Management

Participation to student supervision:

- 4 Master students
- 2 Bachelor students

Conferences

2018	A microfluidic method to sort capsules and cells according to their mechanical properties (Poster)	<u>D. Vesperini</u> , A. Le Goff	8 th World Congress of Biomechanics, Dublin, Ireland
2018	Deformability-based (micro)fluidic sorting	<u>D. Vesperini</u> , A.-V. Salsac, A. Le Goff	Rencontres de-u GDR Micro- et Nanofluidique, Grenoble, France
2017	A microfluidic method for capsule and cell sorting based on mechanical properties	<u>D. Vesperini</u> , I. Bihi, A. Le Goff	Cell Physics 2017, Saarbrücken, Germany
2017	Microfluidic study of megakaryocyte elongation during platelet production	<u>D. Vesperini</u> , I. Bihi, S. Poirault-Chassac, D. Baruch, M. Reyssat, <u>A. Le Goff</u>	23 rd Congress of the European Society of Biomechanics, Seville, Spain
2016	Deformability- and size-based microcapsule sorting	<u>D. Vesperini</u> , A.-V. Salsac, A. Le Goff	1 st Journée de la Matière et des Systèmes complexes, Saclay, France
2016	Deformability- and size-based capsule sorting	<u>D. Vesperini</u> , N. Munier, P. Maire, A.-V. Salsac, A. Le Goff	5 th Micro and Nano Flow Conference, Milan, Italy
2016	Deformability- and size-based microcapsule sorting (Poster)	<u>D. Vesperini</u> , A. Le Goff	Active Complex Matter, Summer School, Cargese, France
2016	Trajectoires de capsules plus ou moins souples	<u>D. Vesperini</u> , A. Le Goff	36 th Journée de Physiques Statistiques, Paris, France
2015	Deformability-based capsule sorting	<u>A. Le Goff</u> , <u>D. Vesperini</u> , N. Munier, P. Maire, F. Edwards-Lévy, A.-V. Salsac	68 th APS Division of Fluid Dynamics, Boston, USA

Publications

D. Vesperini, O. Chaput, N. Munier, P. Maire, F. Edwards-Lévy, A.-V. Salsac, and A. Le Goff, Deformability- and size-based microcapsule sorting, *Medical Engineering and Physics*, (2017)

Honors

Obtention of the DAAD grant for doing a 3 months stay in the INM laboratory in Saarbrücken 2017
1st prize presenter, 6th edition of "Journée Scientifique de BMBI" 2017
Top of the year in the material section and nominated to the Academic prize at UTT 2015

Technical Skills

Experiments Cell culture, microfluidics, microscopy, microfabrication, lithography, image analysis, laser ablation, AFM
Softwares Image J, Latex, JPK processing
Languages French (Mother tongue), English (Fluent), Italian (Intermediate), Spanish (Beginner)

Leadership and other implications

- PhD student association RED² Compiègne, France
• **President** 2016-2017
- Organization with the engineer students of visits of the reseach laboratories during 1 day
 - Organization of social events: afterworks, barbecue, laser game
- BMBI Scientific Council Compiègne, France
• **Elected member** 2015-2017
- Organization of the 6th edition of the "Journée scientifique de BMBI"
 - Organization of a monthly BMBI afterwork
- PhD student association Doc' Up Paris, France
• **Broad member** 2015-2017
- Partnership between Paris and Compiègne
- Drama group of the UTT Troyes, France
• **Actress** 2012-2014
- Participation to 3 plays
 - Promote one of the play in the local TV channel "Canal 32"