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**Address**
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UK

# Davide Ariberto Domenico Cassani

## PhD Candidate in Biophysics and Cell Biology

## Education

**2014 - To date, University College London**
PhD candidate in Biophysics and Cell Biology
Biophysics of cell shape lab
Thesis title: Unveil actomyosin cortex architecture: Insights from cryo-electron tomography of actomyosin cortex in isolated blebs

**2011 - 2014, Politecnico di Milano**
MEng in Biomedical Engineering with specialization in Cells, Tissue and Biotechnology
Thesis title: Influence of physicochemical arrangement on mechanical, morphological and biological properties of electrodeposited chitosan and PEO:chitosan thin films
Mark: 110 out of 110

**November 2012, Vysoke Uceni Technicke V Prague**
Athens course in: "Radiation protection quantities and their measurements"

**September 2012 - February 2013, Katholieke Universiteit Leuven**
Erasmus program

**March 2012, Instituto Superior Tecnico de Lisbon**
Athens course in: "Essentials on fabrication laboratory"

**2008 - 2011, Politecnico di Milano**
BSc in Biomedical Engineering
Thesis title: Optimization of experimental setup for bladder compliance analysis
Mark: 101 out of 110

**March 2012, Technische Universitat Wien**
Athens course in: "Ultrasound in nature, engineering and medicine"

## Research Experience

**September 2014 - To date, *PhD Candidate*, University College London, UK**
Brief Synopsis of the Research:
The ability of cells to change their shape relies on an accurate control of cell surface mechanics. This fine control is achieved by regulation and organisation of single molecules at the actomyosin cortex level. The aim of my project is to understand how the cortical organisation can achieve this control of cell surface mechanics. To answer this question, I will integrate mechanical analysis (e.g. AFM, micropipette aspirations) with light microscopy and cryo electron tomography.

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**September 2013 - April 2014, *Visiting Student*, Surface Nanoengineering Lab, University of Ottawa, Canada**
Brief Synopsis of the Research:
The work was aimed to understand the behavior of osteoblast-like cells cytoskeleton on thin films with different stiffness and pattern. The chitosan:PEO blend films were produced by electrophoretic deposition and characterized by FTIR, Raman Spectroscopy and AFM at University of Ottawa. After a culture of Osteoblast-like cells, cytoskeleton and cell morphology were analyzed by Fluorescence Microscopy and Scanning Electron Microscopy.

# Publications

A. Ketabchi, K Komm, M. Miles-Rossouw, **D.A.D. Cassani** and F. Variola
Nanoporous titanium surfaces for sustained elution of proteins and antibiotics. *PLOS ONE* Vol. 9 Issue 3 (2014)

**D.A.D. Cassani**, L. Altomare, L. De Nardo and F. Variola
Physicochemical and nanomechanical investigation of electrodeposited chitosan: PEO blends. *J. Mater. Chem. B*, Vol.3, 2641-2650 (2015)

P. Chugh,A.G. Clark,M.B. Smith, **D.A.D. Cassani**,K. Dierkes, A. Ragab,P.P. Roux,G. Charras,G. Salbreuxand E.K. Paluch
Actin cortex architecture regulates cell surface tension. *Nat. Cel. Bio.*, Vol. 19, Issue 6, 689-697 (2017)

# Technical Skills

### Biophysical techniques
AFM, AFM+confocal, micropipetting, agar-based one-dimensional cell confinement, microfluidics (cell confinement in channels)

### Light microscopy
STORM, spinning disk, confocal

### Electron microscopy
SEM, cryo electron microscopy

### Microfabrication
electrodeposition, soft-litography (channel), 3D printing

### Molecular/cellular biology techniques
siRNA transfection, plasmid transfection, cell culture, live imaging, sample fixation for light and electron microscopy

# Software Skills

### Programming
- Matlab
- Python
- R
- Latex

### Computer Software
- Fiji
- Amira
- Onshape
- Illustrator
- Graphpad
- JPK package
- OriginPRO
- Office package
- Endnote
- Rhinoceros

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# Awards

**Award: "Francesca Martini Prize for best poster"**
June 2017, SIBBM2017, Milano

**Scholarship: "Tesi all'estero, a.a. 2013/2014"**
2013, Politecnico di Milano

**Scholarship: "Borsa Erasmus, a.a. 2012/2013"**
2012, Politecnico di Milano

# Activities and Outreach

**Student conference organization**
Organization and chairing of the first IPLS PhD students retreat. In collaboration with another PhD student, I organized a small students conference of three days (Hove, UK). In addition to 20 students, four international scientists came and gave seminars.

**Student talks organization**
Organization of the IPLS chalk talks. In collaboration with another PhD student, I organized a series of students chalk talks throughout the year. The informal environment was perfect to stimulate debate and scientific discussion.

# Language

**English**
Fluent

**Italian**
Native language

**French**
Basic