

## Department Staff

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Work Phone: +34 91 497 3667 Work  
Email: [rafael.delgado@uam.es](mailto:rafael.delgado@uam.es) Website:  
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**RAFAEL DELGADO BUSCALIONI** Associate  
Professor [Statistical Physics of Complex  
Liquids and Biophysics](#)

Work Module 5, Office 509, 5th floor.

### Biographical Info

Postdoc at Queen Mary, University College London.

PhD at UNED.

Physics Degree, Universidad Complutense Madrid.

### Honors and Awards

Marie Curie and Ramon y Cajal research fellowships.

### Research Interests

Fluid dynamics.

Molecular hydrodynamics.

Colloids.

Polymer dynamics.

Ultrasound-matter interaction.

Coarse-graining theory.

Hybrid models.

Fluctuating hydrodynamics.

Euler-Lagrange methods.

Immersed Boundary Method.

Collaborate in FLUAM. a versatile GPU code for Fluid And Matter dynamics: available at <https://code.google.com/p/fluam>

### Relevant/Recent Publications

F. Balboa Usabiaga and R. Delgado-Buscalioni and B. E. Griffith and A. Donev, Inertial Coupling Method for particles in an incompressible fluctuating fluid, Computer

Methods in Applied Mechanics and Engineering, 269:139-172, (2014). [\[URL\]](#)

Raffaello Potestio, Sebastian Fritsch, Pep Español, Rafael Delgado-Buscalioni, Kurt Kremer, Ralf Everaers, and Davide Donadio Hamiltonian Adaptive Resolution Simulation for Molecular Liquids, Physical Review Letters 110, 108301 (2013). [\[URL\]](#)

Raffaello Potestio, Pep Español, Rafael Delgado-Buscalioni, Ralf Everaers, Kurt Kremer, and Davide Donadio Monte Carlo Adaptive Resolution Simulation of Multicomponent Molecular Liquids Phys. Rev. Lett. 111, 060601 (2013). [\[URL\]](#)

Florencio Balboa Usabiaga, Ignacio Pagonabarraga, Rafael Delgado-Buscalioni, Inertial coupling for point particle fluctuating hydrodynamics, Journal of Computational Physics 235, 701 (2013). [\[URL\]](#)

Carmen Hijón, Pep Español, Eric Vanden-Eijnden and Rafael Delgado-Buscalioni, Mori-Zwanzig formalism as a practical computational tool, Faraday Discuss., (2010). [\[URL\]](#)

R. Delgado-Buscalioni, K. Kremer and M. Praprotnik, Coupling atomistic and continuum hydrodynamics through a mesoscopic model: Application to liquid water, J. Chem. Phys. 131, 244107 (2009). [\[URL\]](#)

R. Delgado-Buscalioni, E. Chacon and P. Tarazona, Hydrodynamics of nanoscopic capillary waves, Phys. Rev. Lett. 101,106102 (2008). [\[URL\]](#)

R. Delgado-Buscalioni, Cyclic dynamics of a tethered polymer under shear flow, Phys. Rev. Lett. 96, 088303 (2006). [\[URL\]](#)

G. De Fabritiis, R. Delgado-Buscalioni and P. Coveney, Modelling the mesoscale with molecular specificity, Phys. Rev. Lett.97, 134501 (2006). [\[URL\]](#)

R. Delgado-Buscalioni and P. V. Coveney Continuum-particle hybrid coupling for mass, momentum and energy transfers in unsteady fluid flow, Phys. Rev. E, 67, 046704 (2003). [\[URL\]](#)

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