

## Publications, by subject

I prefer, here, to give a classification by subject rather than by date, to give a clearer overview of the evolution of my interests with time. A full publication list (by date) with clickable links is to be found on the HAL website : <https://cv.hal.science/anthony-maggs>

### *Percolation*

**Critical dynamic response of the dilute antiferromagnetic chain,**

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**Ising model on a self avoiding chain ,**

B.K. Chakrabarti, A.C. Maggs, R.B Stinchcombe, *J. Phys. A*, 18, L373 (1985).

**Critical dynamics at the percolation threshold,**

A.C. Maggs, R.B Stinchcombe, *J. Phys. A*, 19, L63 (1985).

**Dynamical scaling for longitudinal dynamics of the dilute Heisenberg and quantum XY chain,**

A.C. Maggs, L.L. Goncalvez, R.B Stinchcombe, *J. Phys. A*, 19, 1927 (1986).

**Dynamic scaling on fractals with sublattices,**

R.B Stinchcombe, A.C. Maggs, *J. Phys. A*, 19, 1949 (1986).

**Calculating dynamic structure factors with the real space renormalisation group,**

A.C. Maggs, R.B. Stinchcombe, *J. Phys. A*, 41, 2637 (1986).

### *Fluctuations and electrons*

**Non-transferable van der Waals potentials,**

A.C. Maggs, N.W. Ashcroft, *Phys. Rev. B* 36, 7586 (1987).

**Electronic fluctuation and cohesion in Metals,**

A.C. Maggs, N.W. Ashcroft, *Phys. Rev. Lett.* 59, 113 (1987).

**Beyond the pair approximation in metals,**

A.C. Maggs, N.W. Ashcroft, invited proceeding – Interface Science and Engineering, *J. de Physique C*5, 131 (1988).

### *Membranes*

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**Simulation of shape changes and adhesion phenomena in model erythrocytes,**

S. Leibler, A.C. Maggs, *Proc. Nat. Acad. Sci. U.S.A.* 4871, 6433 (1990).

**Size of an inflated vesicle in 2-dimensions,** A.C. Maggs, S. Leibler, M.E. Fisher, C.J. Camacho, *Phys. Rev. A*.

42, 691 (1990).

**Stretching and buckling of polymerized membranes: a Monte Carlo study,**

E. Guitter, S. Leibler, A.C. Maggs, F. David, *J. de Phys. France*, 51, 1055 (1990).

**Adsorption and fluctuations of two-dimensional vesicles,**

A.C. Maggs, S. Leibler, *Europhys. Lett.* 12, 19 (1990).

**Computer simulations of self-assembled membranes,**

J.M. Drouffe, A.C. Maggs, S. Leibler, *Science*, 254, 1353 (1991).

**Physics of fluctuating membranes,**

A.C. Maggs, S. Leibler, invited proceedings, Physics Computing '92 (1992).

### *Cytoskeleton*

**Analysis of microtubule rigidity using hydrodynamic flow and fluctuations,**

P. Venier, A.C. Maggs, M-F. Carlier, D. Pantaloni, *J. Biol. Chem.* 269, 13353 (1994).

**Flexibility of actin filaments derived from thermal fluctuations,**

H. Isambert, P. Venier, A.C. Maggs, A. Fattoum, R. Kassab, D. Pantaloni, M.F. Carlier, *J. Biol. Chem.* 270, 11437 (1995).

**Selection of length distributions in Living polymers,**

A.C. Maggs, D. Mukamel, C.A. Pillet, *Phys. Rev. E* 50, 774 (1994).

**Diffusion and formation of microtubule asters: physical processus versus biochemical regulation,**

M. Dogterom, A.C. Maggs, S. Leibler, *Proc. Nat. Acad. Sci.* 4921, 1683 (1995).

**Self organization of microtubules and motors,**

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**Mouvement dependent concentration of motors in biological arrays,**

F. Nédélec, T. Surrey, A.C. Maggs, *Phys.Rev. Lett.* 86, 3192 (2001).

*Rheology of biopolymers*

**Unbinding transitions in semiflexible polymers,**

A.C. Maggs, D.A. Huse, S. Leibler, *Europhys. Lett.* 8, 1930 (1990).

**The Mechanical properties of actin gels. Elastic modulus and filaments motions,**

P.A. Janmey, S. Hvidt, A.C. Maggs, J. Kas, Lerche D, E. Sackmann, M. Schliwa, T.P. Stossel, *J. Bio. Chem.* 269, 32503 (1994).

**Bending of actin filaments,**

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**Dynamics and rheology of actin solutions,**

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**Subdiffusion and Anomalous Local Viscoelasticity in Actin Networks**

F. Amblard, A. C. Maggs, B. Yurke, S. Leibler *Phys. Rev. Lett.* 77, 4470 (1996).

**Two plateau moduli for actin gels,**

A.C. Maggs, *Phys. Rev. E*, 55, 7396 (1997).

**Microbead mechanics with actin filaments,**

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R. Everaers, F. Jülicher, A. Ajdari, A.C. Maggs *Phys. Rev. Lett.* 82, 3717 (1999).

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**Viscoelasticity of solutions of motile polymers,**

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**Phase Separation by Entanglement of Active Polymerlike Worms,**

A Deblais, A. C. Maggs, D Bonn, S Woutersen *Physical Review Letters* 124 (20), 208006 1 (2020).

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**Writhing geometry at finite temperature: geometric phases for stiff polymers,**

A. C. Maggs, *J. Chem. Phys.* 114, 5888 (2001).

**Comment on "Elasticity model of a supercoiled DNA molecule",**

V. Rossetto, A. C. Maggs, *Phys. Rev. Lett.* 88, 089801 (2002).

**Writhing geometry of open DNA,**

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*Light scattering*

**Dynamic Scattering from semiflexible polymers,**

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**Writhing photons and Berry phases in polarized multiple scattering,**

A. C. Maggs, V. Rossetto. *Phys. Rev. Lett.* 87, 253901 (2001).

### **Dynamic scattering from semiflexible polymers,**

T. B. Liverpool, A. C. Maggs, *Macromolecules* 34, 6064 (2001).

### **Writhing geometry of stiff polymers and scattered light,**

invited proceedings – Geometry Integrability and Non-Linearity in Condensed Matter Physics. V. Rossetto, A.C. Maggs, *Eur. Phys. J. B* 29, 323 (2002).

## *Quantum computing*

### **Simple Glass Models and Their Quantum Annealing**

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### **The problems that quantum annealing cannot solve**

T. Jorg, F. Krzakala, J. Kurchan, A. C. Maggs and J. Pujos *Europhys. Lett.*, 89, 40004 (2010).

### **Quantum Annealing of Hard Problems**

Thomas Jörg Florent Krzakala, Jorge Kurchan and A. C. Maggs, *Progress of Theoretical Physics*, 184, 290-303 (2010).

## *Monte Carlo and Molecular dynamics*

### **Multiscale Monte Carlo Algorithm for Simple Fluids.**

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### **Adding an energy-like conservation law to the leapfrog integrator**

A.C. Maggs *J. Phys. A*, Volume 46, Issue 45, 455001 (2013).

### **Multi-scale time-stepping in molecular dynamics**

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### **Molecular dynamics simulation of the capillary leveling of viscoelastic polymer films**

I Tanis, H Meyer, Thomas Salez, E Raphael, A. C. Maggs, J Baschnagel, *Journal of chemical physics* 146, 203327 (2017).

### **All-atom computations with irreversible Markov chains,**

MF Faulkner, L Qin, A. C. Maggs, W Krauth *The Journal of chemical physics* 149 (6), 064113 (2018)

### **Multithreaded event-chain Monte Carlo with local times,**

B Li, S Todo, A. C. Maggs, W Krauth arXiv preprint arXiv:2004.11040 (2020)

### **JeLLyFysh-Version1. 0-a Python application for all-atom event-chain Monte Carlo,**

P Hoellmer, L Qin, MF Faulkner, A. C. Maggs, W Krauth *Computer Physics Communications*, 107168 3 (2020).

### **Event-chain Monte Carlo with factor fields,**

Z Lei, W Krauth, A. C. Maggs *Physical Review E* 99 (4), 043301 2 (2019)

### **Large-scale dynamics of event-chain Monte Carlo,**

A. C. Maggs, Werner Krauth *Physical Review E*, 105, 015309 (2022)

### **Hard-disk dipoles and non-reversible Markov chains,**

Philipp Hoellmer, A. C. Maggs, Werner Krauth, *J. Chem. Phys.* 156, 084108 (2022)

### **Sparse Hard-Disk Packings and Local Markov Chains.**

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### **Hard-disk pressure computations – a historic perspective,**

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### **The virial theorem with periodic boundary conditions,**

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### **Liquid-hexatic transition for soft disks,**

A.C. Maggs, Yoshihiko Nishikawa, Werner Krauth, *Phys. Rev. E* 108, 024103 (2023).

**Non-reversible Monte Carlo: an example of 'true' self-repelling motion,** A. C. Maggs, *EPL* :2310.19494 (2024).

### **Fast, approximation-free molecular simulation of the SPC/Fw water model using non-reversible Markov chains**

Philipp Höllmer, A. C. Maggs, Werner Krauth *Scientific Reports*, 14, 1, 16449 (2024).

## *Charged systems*

**Local simulation algorithms for Coulomb interactions**,  
A.C. Maggs, V. Rossetto, *Phys. Rev. Lett.* 88, 196402 (2002).

**Dynamics of a local algorithm for Coulomb interactions**,  
A. C. Maggs, *J. Chem. Phys.* 117, 1975 (2002).

**A continuum,  $O(N)$  Monte Carlo algorithm for charged particles**  
J. Rottler and A. C. Maggs, *J. Chem. Phys.* 120, 3119-3129 (2004).

**Auxiliary field Monte Carlo for charged particles**  
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**Local simulation algorithms for Coulombic interactions**  
L. Levrel, F. Alet, J. Rottler and A. C. Maggs, invited proceedings Statphys 22, *Pramana* 64, 1001, (2005).

**Auxiliary field simulation and Coulomb's law**,  
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**Simulating van der Waals-interactions in water/hydrocarbon-based complex fluids**  
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**Thermal Casimir interactions in general geometries**  
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S. Pasquali, A.C. Maggs, *J. Chem. Phys.* 129, 014703 (2008).

**Boundary conditions in local electrostatic algorithms**  
L. Levrel, A.C. Maggs, *J. Chem. Phys.* 128, 214103 (2008)

**Numerical studies of Lifshitz interactions between dielectrics**  
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**Long-ranged electrostatics and local algorithms**  
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**Legendre transforms for electrostatic functionals**  
Justine S. Pujos, A.C. Maggs. Invited contribution: *New Challenges in Electrostatics of Soft and Disordered Matter* (Stanford Publishing, 2013).

**Solving fluctuation-enhanced Poisson-Boltzmann equations**  
Zhenli Xu, A.C. Maggs. *Journal of Computational Physics* 275, 310-322 (2014)

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*Journal of Chemical Theory and Computation* 11 (4), 1419-1427 (2015)

**General theory of asymmetric steric interactions in electrostatic double layers**,  
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**General theory of asymmetric steric interactions in electrostatic double layers**,  
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**Nonequilibrium Tuning of the Thermal Casimir Effect**,  
DS Dean, BS Lu, A. C. Maggs, R Podgornik *Physical Review Letters* 116 (24), 240602 (2016).

**Structural interactions in ionic liquids linked to higher order Poisson-Boltzmann equations**  
R Blossey, A. C. Maggs, R Podgornik *Phys Rev. E* 95, 060602(R) (2017).

**Laplace pressure based disjoining pressure isotherm in non symmetric conditions**

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**A fluctuation-corrected functional of convex Poisson-Boltzmann theory,**

R Blossey, A. C. Maggs Journal of Physics A: Mathematical and Theoretical 51 (38), 385001 (2018).

*Colloids and elasticity*

**Elastic theory of a confocal slice**

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**Anisotropic elasticity in confocal studies of colloidal crystals,**

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