

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,

A.C. Maggs, R.B Stinchcombe, *J. Phys. A*, 17, 1555 (1983).

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

Entropic interactions between polymerised Membranes,

S. Leibler, A.C. Maggs, *Phys. Rev. Lett.* 63, 406 (1989).

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,

F.J. Nédélec, T. Surrey, A.C. Maggs, S. Leibler, *Nature*, 389, 305 (1997).

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,

H. Isambert, A.C. Maggs, *Europhys. Lett.* 31, 263 (1995).

Dynamics and rheology of actin solutions,

H. Isambert, A.C. Maggs, *Macromolecules* 29, 1036 (1996).

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,

A.C. Maggs, *Phys. Rev. E* 57, 2091 (1998).

Dynamic fluctuations of semiflexible polymers,

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

Pulling on a filament,

A. Ajdari, F. Jülicher, A. Maggs, *J. Phys. I*, 47, 1823 (1997).

Twist and writhe dynamics of a stiff polymer,

A.C. Maggs *Phys. Rev. Lett.* 85, 5472 (2000).

Viscoelasticity of solutions of motile polymers,

T. B. Liverpool, A. C. Maggs, A. Ajdari. *Phys. Rev. Lett.* 86, 4171 (2001).

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).

Topology and DNA

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,

V. Rossetto, A.C. Maggs, *J. Chem. Phys.* 118, 9864 (2003).

Light scattering

Dynamic Scattering from semiflexible polymers,

E. Farge, A.C. Maggs, *Macromolecules* 26, 5041 (1993).

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

Thomas Jorg, Florent Krzakala, Jorge Kurchan, and A. C. Maggs, *Phys. Rev. Lett.* 101, 147204 (2008).

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.

A. C. Maggs *Phys. Rev. Lett.* 97, 197802 (2006).

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

A.C. Maggs *EPL* 118, 20006 (2017).

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.

Hoellmer, P., Noirault, N., Li, B. et al. *J Stat Phys* 187, 31 (2022).

Hard-disk pressure computations – a historic perspective,

Botao Li, Yoshihiko Nishikawa, Philipp Höllmer, Louis Carillo, A. C. Maggs, Werner Krauth *J. Chem. Phys.* 157, 234111 (2022).

The virial theorem with periodic boundary conditions,

A.C. Maggs, *Chem. Phys. Lett.*, 816, 140389, (2023)

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
A. C. Maggs, *J. Chem. Phys.* 120, 3119-3129 (2004).

Local Molecular Dynamics with Coulombic Interactions,
J. Rottler and A.C. Maggs *Phys. Rev. Lett.* 93, 170201, (2004).

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,
A.C. Maggs and J. Rottler, invited proceedings, Computational Physics 2004, *Computer Physics Communications*, 169, p160, (2005).

Monte Carlo Algorithms for Charged Lattice gases.
L. Levrel and A.C. Maggs. *Phys. Rev.* E72 , 016715 (2005).

Simulating Nanoscale Dielectric Response.
A. C. Maggs and R. Everaers *Phys. Rev. Lett.* 96, 230603 (2006).

Monte Carlo simulation of a model of water.
A. C. Maggs *Phys. Rev. E* 72, 040201 (2005)

Simulating van der Waals-interactions in water/hydrocarbon-based complex fluids
I. Pasichnyk, R. Everaers, A.C. Maggs *J. Chem. Phys. B.* 112, 1761 (2008).

Thermal Casimir interactions in general geometries
S. Pasquali, F. Nitti, A.C. Maggs, *Phys. Rev. E* 77, 016705 (2008).

Fluctuation induced interactions between dielectrics in general geometries
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
S. Pasquali and A. C. Maggs, *Phys. Rev. A* 79, 020102 (2009).

Collective dispersion forces in the fluid state
H. Berthoumieux, A.C. Maggs *Europhys. Lett.* 91, 56006 (2010).

Long-ranged electrostatics and local algorithms
J. Rottler and A.C. Maggs invited review, *Soft Matter* 7, 3260 (2011)

A minimizing principle for the Poisson-Boltzmann equation
A.C. Maggs *EPL* 98, 16012 (2012).

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)

Electrostatic interactions in the presence of surface charge regulation: Exact results,
A. C. Maggs, R Podgornik *EPL* (Europhysics Letters) 108 (6), 68003, (2014)

Convexity and stiffness in energy functions for electrostatic simulations JS Pujos, A. C. Maggs
Journal of Chemical Theory and Computation 11 (4), 1419-1427 (2015)

General theory of asymmetric steric interactions in electrostatic double layers,
A. C. Maggs, R Podgornik *Soft Matter* 12, 1219-1229 (2016).

Fluctuation-induced forces governed by the dielectric properties of water: A contribution to the hydrophobic interaction,
H Berthoumieux, A. C. Maggs *The Journal of chemical physics* 143 (10), 104501 (2015).

General theory of asymmetric steric interactions in electrostatic double layers,
A. C. Maggs, R Podgornik *Soft Matter* 12 (4), 1219-1229 (2016).

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

Axel Huerre, Marie-Pierre Valignat, A. C. Maggs, Olivier Theodoly, Marie-Caroline Jullien Applied Physics Letters 111, 221601 (2017).

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

Claire A. Lemarchand, A.C. Maggs, Michael Schindler, *Eur. Phys. Lett.* 97, 48007 (2012).

Low frequency modes and Debye behavior in colloidal crystals

Antina Ghosh, Romain Mari, V.K. Chikkadi, P. Schall, A.C. Maggs, D. Bonn, *Physica A.* 390 2061 (2011)

Anisotropic elasticity in confocal studies of colloidal crystals,

Michael Schindler, A.C. Maggs, *Eur. Phys. J. E* 34 115 (2011).

Truncated correlations in video microscopy of colloidal solids,

M. Schindler and A. C. Maggs *Soft Matter* 8 3864-3874 (2012).

The interplay of sedimentation and crystallization in hard-sphere suspensions,

J. Russo, A.C. Maggs, D. Bonn, H. Tanaka, *Soft Matter*, 9, 7369 (2013)

Phonons in pristine and imperfect two-dimensional soft colloidal crystals,

Ke Chen, Tim Still, Kevin Aptowicz, Sam Schoenholz, Michael Schindler, A. C. Maggs, Andrea J. Liu, Arjun G. Yodh, *Phys. Rev. E.* 88, 022315, (2013)) (2013).

Sampling eigenmodes in colloidal solids,

A. C. Maggs, M Schindler Europhysics Letters, Volume 109, Issue 4, article id. 48005 (2015).

Cavity averages for hard spheres in the presence of polydispersity and incomplete data,

M Schindler, A. C. Maggs The European Physical Journal E 38, 1-13 (2015).

The range and nature of effective interactions in hard-sphere solids,

M Schindler, A. C. Maggs Soft matter 12 (9), 2612-2622 (2016).