

## Publications, by subject

### *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* C5, 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. Gitter, 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, AC 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, AC Maggs, J Baschnagel, *Journal of chemical physics* 146, 203327 (2017).

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

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

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

B Li, S Todo, AC 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, AC Maggs, W Krauth Computer Physics Communications, 107168 3 (2020).

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

Z Lei, W Krauth, AC Maggs Physical Review E 99 (4), 043301 2 (2019)

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

AC Maggs, Werner Krauth Physical Review E, 105, 015309 (2022)

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

Philipp Hoellmer, AC 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, AC 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,** AC Maggs, EPL :2310.19494 (2024).

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

Philipp Höllmer, AC 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. E* 72 , 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,**

AC Maggs, R Podgornik *EPL (Europhysics Letters)* 108 (6), 68003, (2014)

### **Convexity and stiffness in energy functions for electrostatic simulations JS Pujos, AC**

Maggs

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

### **General theory of asymmetric steric interactions in electrostatic double layers,**

AC 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, AC Maggs *The Journal of chemical physics* 143 (10), 104501 (2015).

### **General theory of asymmetric steric interactions in electrostatic double layers,**

AC Maggs, R Podgornik *Soft Matter* 12 (4), 1219-1229 (2016).

### **Nonequilibrium Tuning of the Thermal Casimir Effect,**

DS Dean, BS Lu, AC Maggs, R Podgornik *Physical Review Letters* 116 (24), 240602 (2016).

### **Structural interactions in ionic liquids linked to higher order Poisson-Boltzmann equations**

R Blossey, AC 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, AC Maggs, Olivier Theodoly, Marie-Caroline Jullien *Applied Physics Letters* 111, 221601 (2017).

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

R Blossey, AC 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,**

AC 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, AC Maggs *The European Physical Journal E* 38, 1-13 (2015).

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

M Schindler, AC Maggs *Soft matter* 12 (9), 2612-2622 (2016).