

## **Note:**

Obviously, there are many, many articles on DDS besides the ones listed here. The main reason for listing mainly our works is that most links are all together on two URL's.

\* Pre/reprints of these articles can be downloaded from [here](#). (Search for title.)

+ Pre/reprints of these articles can be downloaded from [here](#). (Search for title.)

# Pre/reprints of these articles can be found on this site.

## **Articles on general aspects of NESM**

# *Probability currents as principal characteristics in the statistical mechanics of nonequilibrium steady states*

R. K. P. Zia and B. Schmittmann,

Journal of Statistical Mechanics: Theory and Experiment P07012 (2007)

+ *Getting More from Pushing Less:*

*Negative Specific Heat and Conductivity in Non-equilibrium Steady States,*

R. K. P. Zia, E. L. Praestgaard, and O. G. Mouritsen,

American Journal of Physics, **70**, 384-392 (2002); cond-matt/0108502

+ *A possible classification of nonequilibrium steady states*

R. K. P. Zia and B. Schmittmann,

Journal of Physics **A39**, L407-413 (2006); cond-mat/0605301

## **Articles on DDS in general and driven Ising lattice gases in particular**

Reviews, schools, etc.

# *Driven Diffusive Systems: An Introduction and Recent Developments,*

B. Schmittmann and R.K.P. Zia,

in Fundamental Problems in Statistical Mechanics IX,

eds. H. van Beijeren and M. H. Ernst, Physics Reports 301, 45-64 (1998).

\* *Contrasts between Equilibrium and Non-equilibrium Steady states:*

*Computer Aided Discoveries in Simple Lattice Gases*

R.K.P. Zia, L.B. Shaw, B. Schmittmann, and R.J. Aсталos

Computer Physics Communications 127, 23-31 (2000).

# *Driven Diffusive Systems: A Tutorial and Recent Developments,*

R.K.P. Zia,

in Computer Simulations of Surfaces and Interfaces,

NATO Science Series II: Mathematics, Physics and Chemistry, V.114, pp. 423-447 eds.

B. Dünweg, D.P. Landau, and A.I. Milchev (Kluwer, NY, 2002).

*Statistical Mechanics of Driven Diffusive Systems*,  
B. Schmittmann and R.K.P. Zia,  
Phase Transitions and Critical Phenomena, Vol. 17, pp.1-220  
eds. C. Domb and J.L. Lebowitz, (Academic, London, 1995).  
[Out of print book. Some libraries have it.]

*Generic Singularities in a Driven Diffusive System*,  
R. K. P. Zia, K. Hwang, B. Schmittmann and K.-t. Leung,  
in *Statistical Physics, Invited Papers from STATPHYS 18*,  
ed. S. Hess, Physica **A194**, 183-189 (1993).

\* *Renormalization Group Analysis of Driven Diffusive Systems*,  
R. K. P. Zia,  
Acta Physica Slovaca **52**, 495-504 (2002).

#### Interface properties

*Suppression of Interface Roughness in Driven Non-equilibrium Systems*,  
K.-t. Leung, K. K. Mon, J. L. Vallés and R. K. P. Zia,  
Physical Review Letters **61**, 1744-1747 (1988).

*Roughness, Spatial and Temporal Correlations of the Interface in a Driven  
Nonequilibrium Lattice Gas -- A Monte Carlo Study*,  
K.-t. Leung, K. K. Mon, J. L. Vallés and R. K. P. Zia,  
Physical Review **B39**, 9312-9317 (1989).

*Driven Nonequilibrium Lattice Systems with a Shifted Periodic Boundary Conditions*,  
J. L. Vallés, K.-t. Leung and R. K. P. Zia,  
Journal of Statistical Physics **56**, 43-68 (1989).

*New Interfacial Phenomena in a Driven Diffusive System*,  
J. L. Vallés, K.-t. Leung and R. K. P. Zia,  
in *Computer Simulation Studies in Condensed Matter Physics II*, pp.152-156  
eds. D.P. Landau, K.K. Mon and H.-B. Schüttler (Springer-Verlag, Berlin, 1990).

*Interfacial Correlation and Dispersion in a Non-equilibrium Steady State System*  
R. K. P. Zia and K.-t. Leung,  
Journal of Physics **A24**, L1399-1404 (1992).

*Anomalous Interfacial Correlations in Nonequilibrium Anisotropic Systems*

K.-t. Leung and R. K. P. Zia

Journal of Physics **A26**, L737-741(1993).

*Phase Transitions in a Driven Lattice Gas with Repulsive Interactions,*

K.-t. Leung, B. Schmittmann and R. K. P. Zia,

Physical Review Letters **A23**, 1772-1775 (1989).

Random and two temperature drives

*Critical Properties of a Randomly Driven Diffusive System*

Schmittmann and R. K. P. Zia,

Physical Review Letters **66**, 357-360 (1991).

<sup>+</sup> *A Lattice Gas Coupled to Two Thermal Reservoirs: Monte Carlo and Field Theoretic Studies*

L. Praestgaard, B. Schmittmann, and R. K. P. Zia

European Physical Journal **B18**, 675-695 (2000); cond-mat/0010053

Open boundaries and phase separation dynamics

*Finger Formation in a Driven Diffusive System*

H. Boal, B. Schmittmann and R. K. P. Zia,

Physical Review **A43**, 5214-5226 (1991).

*Monte Carlo Studies of a Driven Lattice Gas: I. Growth and Asymmetry during Phase Segregation*

F.J. Alexander, C.A. Laberge, J.L. Lebowitz and R. K. P. Zia

Journal of Statistical Physics **82**, 1133-1158(1996).

Bi-layer systems, anisotropic interactions, and others

<sup>+</sup> *Phase Transitions in Driven Bi-layer Systems: A Monte Carlo Study*

C.C. Hill, R. K. P. Zia and B. Schmittmann

Physical Review Letters **77**, 514-517 (1996).

<sup>+</sup> *Onset of Ordering in Driven Bi-Layer Lattice Gases*

B. Schmittmann, C. C. Hill and R. K. P. Zia

Physica **A239**, 382-389 (1997).

<sup>+</sup> *Critical Behaviour of Driven Bilayer Systems:*

*A Field-Theoretic Renormalisation Group Study*

U.C. Täuber, B. Schmittmann, and R. K. P. Zia

Journal of Physics **A34**, L583-589 (2001); cond-matt/0108094

<sup>+</sup> *Phase Transitions in a Driven Lattice Gas with Anisotropic Interactions*

L.B. Shaw, B. Schmittmann, and R. K. P. Zia

Journal of Statistical Physics **95**, 981-995 (1999).

<sup>+</sup> *Possible Existence of an Extraordinary Phase in the Driven Lattice Gas*

R. K. P. Zia, L.B. Shaw, and B. Schmittmann

Physica **A279** 60-68 (2000); cond-mat/9911035.

*Three Point Correlations in Driven Diffusive Systems with Ising Symmetry*

K. Hwang, B. Schmittmann and R. K. P. Zia,

Physical Review Letters **67**, 326-329 (1991).

*Three Point Correlation Functions in Uniformly and Randomly Driven Diffusive Systems*

K. Hwang, B. Schmittmann and R. K. P. Zia

Physical Review **E48**, 800-809 (1993).

### **Articles on TASEP: exact solutions**

*Exactly solvable models in many-body systems,*

G. M. Schütz,

Phase Transitions and Critical Phenomena, Vol. 19

eds. C. Domb and J.L. Lebowitz, (Academic, London, 2001).

[Out of print book. Some libraries have it.]

[\*The asymmetric simple exclusion process: an integrable model for non-equilibrium statistical mechanics\*](#)

Olivier Golinelli<sup>1</sup> and Kirone Mallick

Journal of Physics **A39** 12679-12705 (2006)

[\*Non-equilibrium steady states: fluctuations and large deviations of the density and of the current\*](#)

Bernard Derrida ,

Journal of Statistical Mechanics: Theory and Experiment P07023 (2007)

[\*Nonequilibrium steady states of matrix-product form: a solver's guide\*](#)

R A Blythe and M R Evans

Journal of Physics **A40** R333-R441 (2007)

### **Articles on TASEP: modeling protein synthesis**

<sup>+</sup> *Totally asymmetric exclusion process with extended objects, a model for protein synthesis*

L. B. Shaw, R. K. P. Zia, and K. H. Lee,  
Physical Review **E68**, 021910:1-17 (2003).

<sup>+</sup> *Inhomogeneous exclusion processes and protein synthesis*

J. J. Dong, B. Schmittmann, and R. K. P. Zia,  
Physical Review **E76**, 051113: 1-13 (2007).

<sup>+</sup> *Power spectra of the total occupancy in the totally asymmetric simple exclusion process*

D. A. Adams, R.K.P Zia, and B. Schmittmann,  
Physical Review Letters **99**, 020601:1-4 (2007).

<sup>+</sup> *Towards a model for protein production rates*

J. J. Dong, B. Schmittmann, and R. K. P. Zia,  
Journal of Statistical Physics, **128**, 21-34 (2007).

<sup>+</sup> *Far-from-equilibrium transport with constrained resources*

D. A. Adams, B. Schmittmann, and R. K. P. Zia,  
Journal of Statistical Mechanics: Theory and Experiment **P06009**: 1-13 (2008).

<sup>+</sup> *Feedback and fluctuations in a totally asymmetric simple exclusion process with finite resources*

L. Jonathan Cook and R. K. P. Zia  
Journal of Statistical Mechanics: Theory and Experiment, **P02012**: 1-12 (2009).

<sup>+</sup> *Understanding the edge effect in TASEP with mean-field theoretic approaches*

J. J. Dong, R. K. P. Zia, and B. Schmittmann,  
Journal of Physics A: Mathematical and Theoretical **42**, 015002: 1-14 (2009).

<sup>+</sup> *Competition between many Totally Asymmetric Simple Exclusion Processes for a Finite Pool of Resources*

L. Jonathan Cook, R. K. P. Zia, B. Schmittmann  
arXiv: 0906.3730, submitted to Physical Review **E**

### **Articles on two driven species**

<sup>+</sup> *Onset of Spatial Structures in Biased Diffusion of Two Species*

B. Schmittmann, K. Hwang and R. K. P. Zia,  
Europhysics Letters **19**, 19-23 (1992).

*Spatial Structures with Nonzero Winding Number in Biased Diffusion of Two Species*

K.E. Bassler, B. Schmittmann and R. K. P. Zia  
Europhysics Letters **24**, 115-120 (1993).

*Spontaneous Structure Formation in Driven Systems with Two Species: Exact Solutions in a Mean-Field Theory*

Vilfan, R. K. P. Zia and B. Schmittmann  
Physical Review Letters **73**, 2071-2074 (1994).

*Biased Diffusion of Two Species,*

Schmittmann, K. Bassler, K. Hwang, and R. K. P. Zia,  
in *Order-Disorder Transitions and Criticality*,  
ed. C.K. Hu and K.-t. Leung, Physica **A205**, 284-291 (1994).

*Novel Phase Transitions in Biased Diffusion of Two Species*

G. Korniss, B. Schmittmann and R. K. P. Zia  
Europhysics Letters **32**, 49-54 (1995).

*Surprises in Simple Driven Systems: Phase Transitions in a Three State Model*

R. K. P. Zia and B. Schmittmann,  
in *New Trends in Computer Simulations of Spin Systems*,  
eds. D. P. Landau and M. Suzuki, International Journal of Modern Physics **C7**, 409-416  
(1996).

*Non-equilibrium Phase Transitions in a Simple Three-State Lattice Gas*

G. Korniss, B. Schmittmann and R. K. P. Zia  
Journal of Statistical Physics **86**, 721-748 (1997).

<sup>+</sup> *Long Range Correlations in the Disordered Phase of a Simple Three State Lattice Gas*

G. Korniss, B. Schmittmann and R. K. P. Zia  
Physica **A239**, 111-119 (1997).

<sup>+</sup> *Drifting Spatial Structures in a System with Oppositely Driven Species*

K.-t. Leung and R. K. P. Zia  
Physical Review **E56**, 308-315 (1997).

<sup>+</sup> *Asymmetries in Structure Factor Histograms*

G. Korniss, B. Schmittmann, and R. K. P. Zia  
Journal of Physics **A30**, 3837-3845 (1997).

<sup>+</sup> *Long-Range Order in a Quasi One-Dimensional Non-Equilibrium Three-State Lattice Gas*

G. Korniss, B. Schmittmann, and R. K. P. Zia  
Europhysics Letters **45**, 431-436 (1999).

<sup>+</sup> *Coarsening Dynamics of a Quasi One-dimensional Driven Lattice Gas*,  
J. T. Mettetal, B. Schmittmann, and R. K. P. Zia,  
EuroPhysics Letters **58**, 653-659 (2002); cond-mat/0110301

<sup>+</sup> *Effects of Differential Mobility on Biased Diffusion of Two Species*  
R. S. Hipolito, R. K. P. Zia and B. Schmittmann  
Journal of Physics A **36**, 4963-4975 (2003); cond-mat/0302232

<sup>+</sup> *Anomalous nucleation far from equilibrium*  
Georgiev, B. Schmittmann, and R. K. P. Zia,  
Physical Review Letters **94**, 115701:1-4 (2005); cond-mat/0502209.

<sup>+</sup> *Will jams get worse when slow cars move over?*  
B. Schmittmann, J. Krometis, and R. K. P. Zia,  
EuroPhysics Letters **70**, 299-305 (2005); cond-mat/0503413.

<sup>+</sup> *Spurious phase in a model for traffic on a bridge*  
D. W. Erickson, G. Pruessner, B. Schmittmann, and R. K. P. Zia,  
Journal of Physics **A38**, L659-665 (2005); cond-mat/0508394.

<sup>+</sup> *Cluster growth and dynamic scaling in a two-lane driven diffusive system*  
I.T. Georgiev, B. Schmittmann, and R. K. P. Zia,  
Journal of Physics **A 39**, 3495–3509 (2006); cond-mat/0602595.

<sup>+</sup> *Coarsening of “clouds” and dynamic scaling in a far-from-equilibrium model system*  
D. A. Adams, B. Schmittmann, and R.K.P. Zia  
Physical Review **E75**, 041123:1-6 (2007); arXiv:0704:3452.