Books

Publications in Scientific Journals
‘Kinetics of Human Cone Photopigment Explained with a Rushton-Henry Model’
‘Delays in Neural Networks’
‘Image Evolution in Hopfield Networks’
‘Size of the Domains of Attraction in the Hopfield Model’
5. A.C.C. Coolen and F.W. Kuijk, Neural Networks 2 (1989), 495-506
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7. A.C.C. Coolen, Future Generations Computer Systems 6 (1990), 121-130
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‘Modelling Chemical Modulation of Neural Processes’
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‘The Connections of Large Perceptrons’
‘Coupled Dynamics of Fast Spins and Slow Interactions in Neural Networks and Spin Systems’
‘Coupled Dynamics of Fast Spins and Slow Interactions: An Alternative Perspective on Replicas’
‘Dynamics of Fully Connected Attractor Neural Networks near Saturation’
   ‘Equilibrium Distributions of Stochastic Networks without Detailed Balance’

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   ‘Order Parameter Flow in the SK Spin-Glass I: Replica Symmetry’

   ‘Quasi-periodicity and Bifurcation Phenomena in Ising Spin Neural Networks with Asymmetric Interactions’

   ‘Competition Between Pattern Recall and Sequence Processing in a Neural Network Storing Correlated Patterns’

   ‘Order-Parameter Flow in Symmetric and Nonsymmetric Fully Connected Attractor Neural Networks Near Saturation’

   ‘Macroscopic Lyapunov Functions for Separable Stochastic Neural Networks with Detailed Balance’

   ‘Order-Parameter Flow in the SK Spin-Glass II: Inclusion of Microscopic Memory Effects’

   ‘Dynamical Replica Theory for Disordered Spin Systems’

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   ‘Statistical Mechanical Analysis of the Dynamics of Learning in Perceptrons’

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   ‘Random Field Ising Chains with Synchronous Dynamics’

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   ‘Nontrivial Phase Behaviour in the Infinite-Range Quantum Mattis Model’

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   ’Supervised Learning with Restricted Training Sets: a Generating Functional Analysis’

   ’Dynamical Solution of the On-Line Minority Game’

   ’Dynamics of the Batch Minority Game with Inhomogeneous Decision Noise’

   ’Hierarchical Self-Programming in Recurrent Neural Networks’

   ’Stochastic decision making in the minority game’

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63. A.C.C. Coolen, Markov Processes and Related Fields 9 (2003), 177-194
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   ’Finite Connectivity Attractor Neural Networks’

   ’Dynamics of a spherical Minority Game’

67. V. Del Prete and A.C.C. Coolen, Neurocomputing 58-60 (2004), 239-244
   ’Non-Equilibrium Statistical Mechanics of Recurrent Networks with Realistic Neurons’

   ’Parallel Dynamics of Disordered Ising Spin Systems on Finitely Connected Random Graphs’

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   ‘Spin models on random graphs with controlled topologies beyond degree constraints’

   ‘A solvable model of the genesis of amino-acid sequences via coupled dynamics of folding and slow genetic variation’

   ‘Generating functional analysis of minority games with inner product strategy definitions’

   ‘Market response to external events and interventions in spherical minority games’

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   ‘Parallel dynamics of disordered Ising spin systems on finitely connected random graphs with arbitrary degree distributions’

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   ‘Network resilience against intelligent attacks constrained by the degree-dependent node removal cost’

   ‘Protein networks reveal detection bias and species consistency when analysed by information-theoretic methods’

   ‘Entropies of tailored random graph ensembles: bipartite graphs, generalized degrees, and node neighbourhoods’

   ‘Direct Response Analysis in cellular signalling networks’

   ‘Immune networks: multi-tasking capabilities at medium load’

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**Review Papers, Book Chapters & Edited Books**

1. A.C.C. Coolen and D. Sherrington, ‘Mathematical Approaches to Neural Networks’ (North-Holland 1993; ed. J.G. Taylor), 293-306
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2. D. Sherrington, A.C.C. Coolen and S.N. Laughton, CNLS Newsletter (Los Alamos) 124 (1996), 1-12
   *Macroodynamics of Disordered and Frustrated Systems*

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   *A Beginner’s Guide to the Mathematics of Neural Networks*

   *Statistical mechanics of Recurrent Neural networks I: Statics*

   *Statistical mechanics of Recurrent Neural networks II: Dynamics*


   *Dynamics of recall and association*

   *How Förster Resonance Energy Transfer Imaging Improves the Understanding of Protein Interaction Networks in Cancer Biology*

    *Modelling biological networks via tailored random graphs*

**Publications in Conference Proceedings**

1. A.C.C. Coolen, J.J. Denier van der Gon and Th.W. Ruijgrok, ‘Neural Networks from Models to Applications’ (IDSET Paris 1989; ed. L. Personnaz and G. Dreyfus), 269-278
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‘Coupled Dynamics of Fast Neurons and Slow Interactions’

‘Evolution of Order Parameters in Disordered Spin Systems - a Closure Procedure’

‘Complexity in the Coupled Dynamics of Fast Neurons and Slow Synapses’

‘Modern Analytic Techniques to Solve the Dynamics of Recurrent Neural Networks’

‘Macrodynamics of Disordered and Frustrated Systems’

‘Competition Between Feed-Forward and Lateral Information Processing in Layered Neural Networks’

‘Dynamics of Supervised Learning with Restricted Training Sets’

‘Networks of Fast Oscillators with Slow Dynamic Couplings’

‘Discontinuous Recall Transitions Induced by Competition Between Short- and Long-Range Interactions in Recurrent Networks’

‘On-Line Learning with Restricted Training Sets: Exact Solution as a Benchmark for General Theories’

‘Phase Diagram and Storage Capacity of Sequence Storing Neural Networks’

‘Dynamics of Supervised Learning with Restricted Training Sets’

‘Finite Size Effects in Neural Networks’

‘Dynamics of Supervised Learning with Restricted Training Sets and Noisy Teachers’

‘Cluster Derivation of the Parisi Scheme for Disordered Systems’

‘Random Field Ising Chains and Neural Networks with Synchronous Dynamics’

‘A Solvable Model for Secondary Structure Formation in Random Hetero-Polymers’

‘Generating Functional Analysis of LDGM Channel Coding with Many Short Loops’

‘Generating functional analysis of complex formation and dissociation in large protein interaction networks’

‘Random graph ensembles with many short loops’