Paper classification scheme

2005 J. Phys. A: Math. Gen. 38

(http://iopscience.iop.org/0305-4470/38/23/E01)

JOURNAL SCOPE GUIDELINES

Paper classification scheme

This scheme is used to clarify the journal's scope and enable authors and readers to more easily locate the appropriate section for their work. For each of the sections listed in the scope statement we suggest some more detailed subject areas which help define that subject area. These lists are by no means exhaustive and are intended only as a *guide* to the type of papers we envisage appearing in each section. We acknowledge that no classification scheme can be perfect and that there are some papers which might be placed in more than one section. We are happy to provide further advice on paper classification to authors upon request (please email `jphysa@iop.org`).

1. Statistical physics

- numerical and computational methods
- statistical mechanics, phase transitions and critical phenomena
- quantum condensed matter theory
- Bose–Einstein condensation
- strongly correlated electron systems
- exactly solvable models in statistical mechanics
- lattice models, random walks and combinatorics
- field-theoretical models in statistical mechanics
- disordered systems, spin glasses and neural networks
- nonequilibrium systems
- network theory

2. Chaotic and complex systems

- nonlinear dynamics and classical chaos
- fractals and multifractals
- quantum chaos
- classical and quantum transport
- cellular automata
- granular systems and self-organization
- pattern formation
- biophysical models

3. Mathematical physics

- combinatorics
- algebraic structures and number theory
- matrix theory
- classical and quantum groups, symmetry and representation theory
- Lie algebras, special functions and orthogonal polynomials

(*Continued overleaf*)

- ordinary and partial differential equations
- difference and functional equations
- integrable systems
- soliton theory
- functional analysis and operator theory
- inverse problems
- geometry, differential geometry and topology
- numerical approximation and analysis
- geometric integration
- computational methods

4. Quantum mechanics and quantum information theory

- coherent states
- eigenvalue problems
- supersymmetric quantum mechanics
- scattering theory
- relativistic quantum mechanics
- semiclassical approximations
- foundations of quantum mechanics and measurement theory
- entanglement and quantum nonlocality
- geometric phases and quantum tomography
- quantum tunnelling
- decoherence and open systems
- quantum cryptography, communication and computation
- theoretical quantum optics

5. Classical and quantum field theory

- quantum field theory
- gauge and conformal field theory
- quantum electrodynamics and quantum chromodynamics
- Casimir effect
- integrable field theory
- random matrix theory applications in field theory
- string theory and its developments
- classical field theory and electromagnetism
- metamaterials

6. Fluid and plasma theory

- turbulence
- fundamental plasma physics
- kinetic theory
- magnetohydrodynamics and multifluid descriptions
- strongly coupled plasmas
- one-component plasmas
- non-neutral plasmas
- astrophysical and dusty plasmas