List of Publications: Richard Dendy, October 2006

Books

“Plasma Physics: An Introductory Course”
R O Dendy, editor

“Plasma Dynamics”
R O Dendy

Refereed journal articles

(124) “Intermittency, dissipation and scaling in two-dimensional magnetohydrodynamic turbulence”
J A Merrifield, S C Chapman, and R O Dendy
*Physics of Plasmas*, submitted

(123) “Characterisation and interpretation of strongly nonlinear phenomena in fusion, space, and astrophysical plasmas”
R O Dendy and S C Chapman
*Plasma Physics and Controlled Fusion*, accepted

(122) “Fusion, space, and solar plasmas as complex systems”
R O Dendy, S C Chapman and M Paczuski
*Plasma Physics and Controlled Fusion*, accepted

(121) “Aspects of electron acoustic wave physics in laser backscatter from plasmas”
N J Sircombe, T D Arber, and R O Dendy

(120) “Phase speed of electrostatic waves: the critical parameter for efficient electron surfing in plasmas”
M E Dieckmann, N J Sircombe, P K Shukla, M Parviainen and R O Dendy

(119) “The scaling properties of two-dimensional compressible magnetohydrodynamic turbulence”
J A Merrifield, T D Arber, S C Chapman and R O Dendy
*Physics of Plasmas* 13, 012305 (2006)
(118) “Surfatron and stochastic acceleration of electrons in astrophysical plasmas”
K G McClements, R O Dendy, M E Dieckmann, A Ynnerman and S C Chapman

(117) “Comparison of L-mode and H-mode plasma edge fluctuations in the Mega-Amp
Spherical Tokamak”
B D Dudson, R O Dendy, A Kirk, H Meyer and G F Counsell

(116) “Theoretical investigations of frequency sweeping in the Mega-Amp Spherical
Tokamak”
R G L Vann, R O Dendy, and M P Gryaznevich

(115) “Perpendicular shock reformation and ion acceleration”
S C Chapman, R E Lee and R O Dendy
*Space Science Reviews* 121, 5 (2005).

(114) “The scaling properties of dissipation in incompressible MHD turbulence”
J A Merrifield, W C Müller, S C Chapman, and R O Dendy

(113) “Mutual information between geomagnetic indices and the solar wind as seen by
WIND: implications for propagation time estimates”
T K March, S C Chapman, and R O Dendy

(112) “Accelerated electron populations formed by Langmuir wave-caviton interactions”
N J Sircombe, T D Arber, and R O Dendy

(111) “Reforming perpendicular shocks in the presence of pickup protons: initial ion
acceleration”
R E Lee, S C Chapman, and R O Dendy

(110) “Ion acceleration processes at reforming collisionless shocks”
R E Lee, S C Chapman, and R O Dendy

(109) “Recurrence plots and their transformations: visualisation, quantification, and
comparison of patterns in natural data”
T K March, S C Chapman, and R O Dendy
(108) “Laboratory plasma astrophysics experiments using lasers”
N C Woolsey, C Courtois, and R O Dendy

(107) “Robustness and scaling: key observables in the dynamic magnetosphere”
S C Chapman, R O Dendy, and N W Watkins

(106) “Complexity and criticality in fusion, space, and astrophysical plasmas”
R O Dendy, S C Chapman, and T K March

(105) “Experiment on collisionless plasma interaction with applications to supernova remnant physics”
C Courtois, R A D Grundy, A D Ash, D M Chambers, N C Woolsey, R O Dendy, and K G McClements

(104) “Off-axis electron cyclotron heating and the sandpile paradigm for transport in tokamak plasmas”
T K March, S C Chapman, R O Dendy, and J A Merrifield

(103) “Numerical simulations of local shock reformation and ion acceleration in supernova remnants”
R E Lee, S C Chapman, and R O Dendy

(102) “Probability distribution functions for ELM bursts in a series of JET tokamak discharges”
J Greenhough, S C Chapman, R O Dendy, and D J Ward

(101) “Solar flares as cascades of reconnecting magnetic loops”
D Hughes, M Paczuski, R O Dendy, P Helander, and K G McClements

(100) “Fully nonlinear phenomenology of the Berk-Breizman system”
R G L Vann, R O Dendy, G Rowlands, T Arber, and N d'Ambrumenil

(99) “Statistical characterisation of full-disk EUV/XUV solar irradiance and correlation with solar activity”
J Greenhough, S C Chapman, R O Dendy, V M Nakariakov, and G Rowlands
(98) “Self organisation of edge and internal pedestals in a sandpile”
S C Chapman, R O Dendy, and B Hnat

(97) “Identification of a 12-17 day timescale in X-ray observations of GRS 1915+105”
J Greenhough, S C Chapman, S Chaty, R O Dendy, and G Rowlands

(96) “Electron pre-acceleration mechanisms in the foot region of high Alfvénic Mach number shocks”
H Schmitz, S C Chapman, and R O Dendy

(95) “Energetic particles in magnetic confinement systems: synergies beyond fusion”
R O Dendy, K G McClements, M E Dieckmann and N C Woolsey
Nuclear Fusion 42, 986 (2002).

(94) “The influence of electron temperature and magnetic field on cosmic ray injection at high Mach number shocks”
H Schmitz, S C Chapman and R O Dendy

(93) “The role of clustering effects in non-diffusive transport in tokamaks”
J P Graves, R O Dendy, K I Hopcraft, and E Jakeman

(92) “Characterising anomalous transport in accretion discs from X-ray observations”
J Greenhough, S C Chapman, S Chaty, R O Dendy and G Rowlands
Astronomy and Astrophysics 385, 693 (2002).

(91) “Non-Gaussian transport in strong plasma turbulence”
S V Annibaldi, G Manfredi, and R O Dendy

(90) “Surfatron and stochastic acceleration of electrons at supernova remnant shocks”
K G McClements, M E Dieckmann, A Ynnerman, S C Chapman and R O Dendy

(89) “Shock acceleration of cosmic rays: a critical review”
J G Kirk and R O Dendy

(88) “A sandpile model with tokamak-like enhanced confinement phenomenology”
S C Chapman, R O Dendy and B Hnat
(87) “Zonal flow and streamer generation in drift turbulence”
G Manfredi, C M Roach and R O Dendy

(86) “Collisionless shock and supernova remnant simulation experiments on VULCAN”
N C Woolsey, ... , P Carolan, R O Dendy, P Helander, ... , S J Rose

(85) “A simple avalanche model for astroplasma and laboratory confinement systems”
S C Chapman, R O Dendy and B Hnat

(84) “Testing the SOC hypothesis for the magnetosphere”
N W Watkins, M P Freeman, S C Chapman and R O Dendy

(83) “Electron acceleration due to high frequency instabilities at supernova remnant shocks”
M E Dieckmann, K G McClements, S C Chapman, R O Dendy and L O’C Drury

(82) “Evidence for strange kinetics in Hasegawa-Mima turbulent transport”
S V Annibaldi, G Manfredi, R O Dendy and L O’C Drury

(81) “Sawtooth evolution during JET ICRH pulses”
J P Graves, K I Hopcraft, R O Dendy, R J Hastie, K G McClements and M Mantsinen

(80) “A sandpile model with dual scaling regimes for laboratory, space and astrophysical plasmas”
S C Chapman, R O Dendy and G Rowlands

(79) “Robustness of collective behaviour in strongly driven avalanche models: magnetospheric implications”
N W Watkins, S C Chapman, R O Dendy and G Rowlands

(78) “Exactly solvable sandpile with fractal avalanching”
P Helander, S C Chapman, R O Dendy, G Rowlands and N W Watkins
(77) “Ion cyclotron emission from JET deuterium-tritium plasmas”
K G McClements, C Hunt, R O Dendy and G A Cottrell

(76) “Energetic particles in plasma astrophysics”
R O Dendy and J G Kirk

(75) “On the role of self-organised criticality in accretion systems”
R O Dendy, P Helander and M Tagger

(74) “Fusion plasma experiments on TFTR: a twenty year retrospective”
R J Hawryluk, S Batha, ... , R O Dendy, ... , S J Zweben (Princeton team)

(73) “A simple avalanche model as an analogue for magnetospheric activity”
S Chapman, N Watkins, R O Dendy, P Helander and G Rowlands

(72) “Amplitude modulation of kinetic Alfvén waves and the formation of nonlinear structures”
P K Shukla, R Bingham and R O Dendy

(71) “On the appearance and non-appearance of self-organised criticality in sandpiles”
R O Dendy and P Helander

(70) “Sandpiles, silos and tokamak phenomenology: a brief review”
R O Dendy and P Helander

(69) “TFTR DT experiments”
J D Strachan, S Batha, ... , R O Dendy, ... , S J Zweben (Princeton team)

(68) “Deuterium-tritium plasmas in novel regimes in the Tokamak Fusion Test Reactor”
M G Bell, S Batha, ... , R O Dendy, ... , S J Zweben (Princeton team)

(67) “Conversion of neutrinos in dense plasmas”
R Bingham, R A Cairns, J M Dawson, R O Dendy, C N Lashmore-Davies and V N Tsytovich
“Interpretation of measurements of ICRF heated minority proton distributions in JET”
K G McClements, R O Dendy and A Gondhalekar

“Transport properties of energetic particles in a turbulent electrostatic field”
G Manfredi and R O Dendy

“Alpha-particle physics in the Tokamak Fusion Test Reactor DT experiment”
S J Zweben, S H Batha, ... , R O Dendy, ... , V Yavorski (Princeton alpha-particle physics team)

“Acceleration of cosmic ray electrons by ion-excited waves at quasi-perpendicular shocks”
K G McClements, R O Dendy, R Bingham, J G Kirk and L O'C Drury

“Simulation of relativistic electron generation in underdense laser plasma experiments”
G Manfredi, R Bingham and R O Dendy

“Ponderomotive force acceleration of ions in the auroral region”
P K Shukla, L Stenflo, R Bingham and R O Dendy

“Modelling of sawtooth destabilisation during radio-frequency heating experiments in the Joint European Torus”
K G McClements, R O Dendy, R J Hastie and T J Martin

“Test-particle transport in strong electrostatic drift turbulence with finite Larmor radius effects”
G Manfredi and R O Dendy

“Scattering of electromagnetic waves by counter-rotating vortex streets in plasmas”
R Guerra, J T Mendonca, R O Dendy and P K Shukla

“Excitation of ion cyclotron harmonic waves in cosmic ray shocks”
K G McClements, R O Dendy, L O'C Drury and P Duffy
(56) “Interpretation of ion cyclotron emission from sub-Alfvénic fusion products in the Tokamak Fusion Test Reactor”
K G McClements, R O Dendy, C N Lashmore-Davies, G A Cottrell, S Cauffman and R Majeski

(55) “Vlasov gyrokinetic simulations of ion-temperature-gradient driven instabilities”
G Manfredi, M Shoucri, R O Dendy, A Ghizzo and P Bertrand

(54) “Overview of DT results from TFTR”
M G Bell, K M McGuire, ... , R O Dendy, ... , S Zweben (Princeton team)

(53) “Alfvénic behaviour of alpha-particle driven ion cyclotron emission in TFTR”
S Cauffman, R Majeski, K G McClements and R O Dendy

(52) “Ion cyclotron emission due to collective instability of fusion products and beam ions in JET and TFTR”
R O Dendy, K G McClements, C N Lashmore-Davies, G A Cottrell, R Majeski and S Cauffman

(51) “Stabilisation of the ideal m = 1 internal kink by alpha particles and ICRF-heated ions”
K G McClements, R O Dendy, C G Gimblett, R J Hastie and T J Martin

(49) Electrostatic solitary structures in non-thermal plasmas”
R A Cairns, A A Mamun, R Bingham, R Bostrom, R O Dendy, C M C Nairn and P K Shukla

(48) “Recent D-T results on TFTR”
D W Johnson, V Arunasalam, ... , R O Dendy, ... , S J Zweben (Princeton team)

(47) “Anomalous transport and particle acceleration at shocks”
P Duffy, J G Kirk, Y A Gallant and R O Dendy
(46) “Fokker-Planck modelling of auroral wave-particle interactions”
R O Dendy, B M Harvey, M O’Brien and R Bingham

(45) “Review of deuterium-tritium results from the Tokamak Fusion Test Reactor”
K M McGuire, H Adler, ..., R Dendy, ..., S Zweben (Princeton team)

(44) “A model for ideal $m = 1$ internal kink stabilization by minority ion cyclotron resonant heating”
R O Dendy, R J Hastie, K G McClements and T J Martin

“Interpretation of ion cyclotron emission from fusion and space plasmas”
R O Dendy

(42) “A mechanism for beam-driven excitation of ion cyclotron harmonic waves in TFTR”
R O Dendy, K G McClements, C N Lashmore-Davies, R Majeski and S Cauffman

(41) “A model for the generation of obliquely propagating ULF waves near the geomagnetic equator”
K G McClements, R O Dendy and C N Lashmore-Davies

(40) “Superthermal ion cyclotron emission from fusion and space plasmas: a single physical mechanism”
R O Dendy, C N Lashmore-Davies, K G McClements, K F Kam and G A Cottrell

(39) “The excitation of obliquely propagating fast Alfvén waves at fusion ion cyclotron harmonics”
R O Dendy, C N Lashmore-Davies, K G McClements and G A Cottrell

(38) “Scattering of electromagnetic waves by drift turbulent vortices in a plasma”
R O Dendy and J T Mendonca

(37) “Ion cyclotron emission - a natural diagnostic for fusion alpha-particles”
R O Dendy, C N Lashmore-Davies, G A Cottrell, K G McClements and K F Kam
(36) “Ion cyclotron emission measurements during JET deuterium-tritium experiments”
C McCune, M F F Nave, P Smeulders and D F H Start
Nuclear Fusion 33, 1365 (1993).

(35) “Electromagnetic ion cyclotron instability driven by a hot minority ion species with
temperature anisotropy”
C N Lashmore-Davies, R O Dendy and K F Kam

(34) “Ion cyclotron wave emission at the quasi-perpendicular bow shock”
R O Dendy and K G McClements

(33) “The magnetoacoustic cyclotron instability of an extended shell distribution of
ergetic ions”
R O Dendy, C N Lashmore-Davies and K F Kam

(32) “Ion cyclotron harmonic wave generation by ring protons in space plasmas”
K G McClements and R O Dendy

(31) “A gyrokinetic calculation of transmission and reflection of the fast wave in the ion
cyclotron range of frequencies”
C N Lashmore-Davies, V Fuchs and R O Dendy

(30) “A possible excitation mechanism for observed superthermal ion cyclotron emission
from tokamak plasmas”
R O Dendy, C N Lashmore-Davies and K F Kam

(29) “Trapped-passing fluid model for tokamak neoclassical transport”
R W Harvey and R O Dendy

(28) “Gyrokinetic theory of fast wave transmission with arbitrary wavenumber in a non-
uniformly magnetised plasma”
C N Lashmore-Davies and R O Dendy
(27) “Wave propagation near a cyclotron resonance in a non-uniform equilibrium magnetic field”
R A Cairns, C N Lashmore-Davies, R O Dendy, B M Harvey, R J Hastie and H Holt

(26) “Lagrangian dynamics of a charged particle in a tokamak magnetic field”
R O Dendy

(25) “On the anomalous Doppler/inner Lindblad resonance”
R O Dendy

(24) “The absorption of electron cyclotron waves in the vicinity of an extremum of the equilibrium magnetic field”
C N Lashmore-Davies, R O Dendy and R J Hastie

(23) “Gyrokinetic theory of perpendicular cyclotron resonance in a non-uniformly magnetised plasma”
C N Lashmore-Davies and R O Dendy

(22) “Sawtooth oscillations in ion cyclotron emission from JET”
P Schild, G A Cottrell and R O Dendy

(21) “Gyrokinetic theory of perpendicular ion cyclotron resonance”
C N Lashmore-Davies and R O Dendy

(20) “Effect of energy loss on electron cyclotron current drive in tokamaks”
R O Dendy and M R O’Brien

(19) “Resonant interval action transfer between coupled harmonic oscillators”
R O Dendy

(18) “Linear mode conversion and the operator theory of wave mechanics”
R O Dendy
(17) “Superthermal radiation from fusion products in JET”  
G A Cottrell and R O Dendy  

(16) “Fine structure in the energy deposition in a heated rotating toroidal plasma”  
R O Dendy  

(15) “Classical single particle dynamics of the anomalous Doppler resonance”  
R O Dendy  

(14) “On the canonical Hamiltonian structure of the drift equations of motion for a charged particle in a magnetic field”  
R O Dendy  

R O Dendy, A Montes and J P Leite  

(12) “Comparison of theory with electron cyclotron current drive experiments on WT-2”  
R O Dendy, M O'Brien, M Cox and D F H Start  

(11) “Predictions of electron cyclotron current drive efficiency for a top-launched extraordinary mode in a tokamak”  
R O Dendy, R W Harvey and M O'Brien  

(10) “The single-particle and collective descriptions of the anomalous Doppler resonance and the role of ion dynamics”  
R O Dendy, C N Lashmore-Davies and A Montes  

(9) “Absorption of electron cyclotron radiation in tokamak plasmas with a superthermal tail in the electron velocity distribution”  
A Montes and R O Dendy  

(8) “Microwave radiation bursts and the superthermal electron velocity distribution in impulsive phase solar flares”  
R O Dendy and C N Lashmore-Davies  
(7) “Generation of hot closed helical bands by electron cyclotron resonance heating of rational-q tokamak flux surfaces”
R O Dendy

(6) “A triple wave resonance model for the emission from tokamaks of narrow-band radiation at the plasma frequency”
R O Dendy, C N Lashmore-Davies and M Shoucri

(5) “Wave-wave resonance instabilities and electron velocity distribution tail structures”
R O Dendy and C N Lashmore-Davies

(4) “Fast timescale plasma turbulence and the collisionless tearing mode”
R O Dendy and D ter Haar

(3) “The effects of fast timescale turbulence on magnetohydrodynamical behaviour”
R O Dendy and D ter Haar

(2) “On the nonlinear development of the Langmuir modulational instability”
R O Dendy and D ter Haar

(1) “On the integration of a three-wave set of equations”
R O Dendy and D ter Haar

**Recent seminars given at UK universities**

Warwick University, Department of Physics
25th February 2004

St Andrews University, Department of Mathematics
6th February 2004

Manchester University, Department of Physics
19th March 2003

York University, Department of Physics
13th November 2002

Imperial College, Department of Mathematics
10th January 2001
Warwick University, Department of Physics
26th September 2000
Oxford University, Clarendon Laboratory
19th February 1999
Nottingham University, School of Mathematical Sciences
9th December 1998
Manchester University, Department of Physics
21st October 1998
British Antarctic Survey, Cambridge
19th March 1998
Imperial College London, Department of Physics
8th December 1997
Warwick University, Department of Physics
29th October 1997