CURRICULUM VITAE

Andreas Lyberatos

Higher education	BSc in Physics with first class honours, (Imperial College, University of London,1982)
	Phd in Physics (Imperial College,University of London,1986)
	Thesis Title: Interaction effects in fine particle magnetic systems
Membership of Professional Institutions :	Member of the Institute of Physics (UK)(MInstP,CPhys)
	Member of the Institute of Electrical and Electronic Engineers (USA)
Career:	Current occupation: Associate Professor, Department of Materials Science and Technology, Univ. of Crete
	IBM Research Laboratories, San Jose, California (9/84-1/85)
	Postdoctoral Research Fellow:
	1) University of Central Lancashire (3/89-9/90)
	2) Manchester University (10/90 - 7/91)
	3) Keele University (8/91-6/96)
	Visiting Lecturer, University of Crete (9/96-9/99)
	Research Consultant for Seagate Technology PLC (2000-2009)
	Visiting Lecturer, Univ. of Crete (2009-2014)

Research interests

Research interest is mainly on numerical methods in different fields of applied magnetism, for instance fine particles, thin films, multilayers, magneto-optic materials, the theory of thermal fluctuations in micromagnetics, magnetic viscosity , the high speed switching of the magnetization and magnetic vortices. Current research work is focused on significant theoretical problems related to heat-assisted magnetic recording (HAMR) technology, such as high temperature magnetization dynamics and the theory of critical phenomena as applied to FePt recording media. Work has recently been extended to the study of ballistic heat transfer in HAMR multilayers arising from application of a nanosecond laser pulse.

Scholarships-Funding

1. Imperial College Fellowship 1983-1986.
2. ICI ImageData, Runcorn, UK, 1990 ($\approx$ 1000 British Pounds).
3. EC-CAMST Research Fellowship, 1989-1991 ($\approx$ 30000 British Pounds)
4. SERC Research Fellowship, 1991-1996, ($\approx$ 75000 British Pounds)
5. NATO Collaborative Research Grant, no 971356, 172000 BF, 6/1/98-1/8/00
   Collaborating Institution: U. Paris-Sud, Orsay, France.

6. EU-COST Action P3, 'Simulation of physical phenomena in technological applications', Sub-Area: Micromagnetics: 24/9/97-24/9/01.

7. Seagate Technology Research Grant (2004-2009) 240000 US dollars

8. Hitachi Global Storage Technologies Joint Study Agreement (2010-2016) 150000 US dollars.

9. Western Digital Joint Study Agreement (2017-2019) 60000 US dollars

Teaching Experience

- Maths for Physicists (1996-1998) Univ. of Crete
- Computing (1996-1999) Univ. of Crete
- Magnetic Materials (2009-) Univ. of Crete
- Partial differential equations (2010-) Univ. of Crete
- General Physics (2014-) Univ. of Crete
- Electromagnetism (2019-) Univ. of Crete

Research Supervision

I participated in the supervision of the following postgraduate students:

1. M. Fearon, Lancashire Polyt. (currently U. Central Lancash.), PhD, UK, 1989 Present Employment: Industry

2. J. Earl (U. Keele, PhD, UK, 1998) Present Employment: DERA, Fanborough, UK.

3. E. Sterringa: Univ. of Twente, MSc, Holland, 1992 Thesis Title: Magnetic properties of Alumite media Present Employment: Philips Co.

4. M. Van Kooten: Univ. of Twente, MSc, Holland, 1994. Thesis Title: Micromagnetic simulations of a columnar structure. Present Employment: Research

Invited talks

1. EC-CAMST Topical Meeting on Micromagnetics, Enschede (Netherlands), April 1991

2. Concerted European Action on Magnetism (CEAM) Conference, Dresden, April 1992

3. Current Research on Magnetism, (Institute of Physics, Oxford, June 92) NATO Advanced Study Institute "Nanophase Materials: Synthesis-Properties-Applications", Corfu, June 1993.

4. MMM-INTERMAG Conference, Albuquerque, New Mexico, June 1994.

5. INTERMAG Conference (Perth, Australia, 1995).

6. EU-COST Action P3 Workshop (Manchester 5/1998, Stuttgart 12/98)

7. Workshop on 'Time dependent coercivity' (University of Alabama, 11/99)

8. PMRC(Perpendicular magnetic recording conference) (Sendai, Japan, 6/04)

9. MMM Conference, Scottsdale, 11/2011.

10. SPIE Conference, San Francisco, 2016.

Invited Review articles in International Conferences

1. High speed switching in fine ferromagnetic particles
   R.W. Chantrell, J.D. Hannay, M. Wongsam and A. Lyberatos
   IEEE Trans. Magn. **34**, 349-354 (1998).
   presented at the Asia Pacific Data Storage Conf., Taiwan 1997.

2. Thermally activated magnetization reversal in the micromagnetic approach
   A. Lyberatos and R.W. Chantrell
   J. Phys. D: Appl. Phys. **29**, 2332-2342 (1996).
   presented at the Intern. Workshop on new Magn. Mater., Perth 1995.

3. Models of slow relaxation in particulate and thin film materials
   R.W. Chantrell, A. Lyberatos, M. El-Hilo and K. O'Grady
   J. Appl. Phys. **76** (10), 6407-6412 (1994).
   presented at the 6th joint MMM-INTERMAG Conf., Albuquerque, New Mexico 1994.

4. FePt heat assisted magnetic recording media
   D. Weller, G. Parker, O. Mosendz, A. Lyberatos, D. Mitin, N.Y. Safonova and M. Albrecht
   J. Vac. Sci. Technol. B **34**, 060801 (2016)
   presented at the SPIE Conference, San Francisco, 2016

Invited Review articles

1. Monte Carlo models of the magnetization reversal in thin films with strong perpendicular anisotropy
   A. Lyberatos
   J. Phys. D: Appl. Physics **33**, R117-R133 (2000)

2. The physics of the fluctuation field and activation volume
   R.W. Chantrell, J.D. Hannay, G.N. Coverdale, G.W. Roberts and A. Lyberatos
   J. Magn. Soc. Japan **23**, 2058-2064 (1999)

Invited Review articles in books

1. Activation volumes and magnetization reversal in fine particles
   A. Lyberatos, R.W. Chantrell and K. O'Grady
   'Nanophase materials: Synthesis, Properties and Applications', edited by G.C. Hadjipanayis and R.W. Siegel
   (Kluwer Academic, NATO ASI Series E, Applied Sciences 1994) Vol.260,pp653-662.

Refereed articles

1. Anisotropy field and dynamic coercivity of $L1_0$-FePt nanoparticles close to the Curie temperature
   A. Lyberatos
   Physica B: Phys. Cond. Matter **576**, 411741 (2020).

2. Model of ballistic-diffusive thermal transport in HAMR media
   A. Lyberatos and G. J. Parker, Jap. J. Appl. Phys. **58**, 045002 (2019)

3. Switching time in laser pulse heat assisted magnetic recording using $L1_0$-FePt nanoparticles
   A. Lyberatos, D. Weller and G.J. Parker
   J. Appl. Physics **117**, 133905 (2015))

4. Finite size effects in $L1_0$-FePt nanoparticles
   A. Lyberatos, D. Weller and G.J. Parker
   J. Appl. Phys. **114**, 233904 (2013)

5. Size dependence of the Curie temperature of $L1_0$-FePt nanoparticles
   A. Lyberatos, D. Weller, G.J. Parker and B.C. Stipe
   J. Appl. Phys. **112**, 113915-113921 (2012)

6. The thermodynamic limit of magnetic recording
   R.Evans, R.W. Chantrell, U. Nowak, A. Lyberatos and H.J. Richter
   Appl. Phys. Letters **100**, 102402-102404 (2012)

7. The ultimate limit of magnetic recording
   H.J. Richter, A. Lyberatos, U. Nowak, R. Evans and R.W. Chantrell
   J. Appl. Phys. **111**, 033909-033917 (2012)

8. Processing vortices and antivortices in ferromagnetic elements
   A. Lyberatos, S. Komineas and N. Papanicolaou
   J. Appl. Physics **109**, 023911-023917 (2011)

9. Temperature dependence of the magnetization of titanomagnetites
   A. Lyberatos
   J. Magn. Magn. Mater. **311**, 560-564 (2007)

10. A model of thermal erasure in neighboring tracks during thermomagnetic writing
    A. Lyberatos and J. Hohlfeld
    J. Appl. Phys.**95**, 1949-1957 (2004)

11. Thermal stability of the magnetization following thermomagnetic writing in perpendicular media
    A. Lyberatos and K. Yu Guslienko
    J. Appl. Phys. **94**, 1119-1129 (2003)

12. Switching speed limitations in perpendicular magnetic recording media
    A. Lyberatos
    J. Appl. Phys. **93**, 6199-6207 (2003)

13. Thermal effects in the high-speed switching of the magnetization of fine grains
    A. Lyberatos, S. Khizroev and D. Litvinov
    Jpn. J. Appl. Phys. **42**, 1598-1602 (2003)

14. Thermal decay of interacting grains in perpendicular thin-film media
    X. Wang, H.N. Bertram, E. Boerner, A. Lyberatos and V.L. Safonov
    IEEE Trans. Magn.,**MAG-38**, 2084-2086 (2002)

15. Physics of perpendicular recording: Effects of magnetic 'charges'
    D. Litvinov, A. Lyberatos, M.H. Kryder and S. Khizroev
    Jpn. J. Appl. Phys **41**, L758-760 (2002)

16. The switching time of the magnetization in perpendicular recording media
    A. Lyberatos
    J. Magn. Magn. Mater. **246**, 303-309 (2002)

17. Micromagnetic study of subnanosecond magnetic switching in perpendicular multilayers
    A. Lyberatos, G. Ju, R.J.M. van de Veerdonk and D. Weller
    J. Appl. Phys. **91**, 2236-2242 (2002).

18. Domain wall velocity in ultra-thin magnetic films with perpendicular anisotropy
    A. Lyberatos and J. Ferré
    J. Phys. D: Appl. Physics **33**, 1060-1069 (2000)

19. Monte Carlo model of domain growth in ultra-thin magnetic films with perpendicular anisotropy
    A. Lyberatos
    Computational Material Science **18**, 13-18 (2000)

20. The high frequency switching of the magnetization in particulate materials
    A. Lyberatos
    J. Magn. Magn. Mater. **206**, 149-159 (1999)

21. Magnetic viscosity and the field rate dependence of the magnetization
    A. Lyberatos
    J. Magn. Magn. Mater. **202**, 239-250 (1999)

22. Magnetic viscosity in the high frequency regime,
A. Lyberatos
J. Magn. Magn. Mater. **191**, 380-387 (1999)

23. Simulation of the effects of the variation of local coercivities in magneto-optic media.
A. Lyberatos
J. Magn. Magn. Mater. **186**, 248-262 (1998)

24. The fluctuation field of ferromagnetic materials
A. Lyberatos and R.W. Chantrell
J. Phys.: Cond. Matter **9**, 2623-2643 (1997)

25. Model of thermally activated maggnetization reversal in thin films of amorphous rare-earth-transition-metal alloys
A. Lyberatos, J.S. Earl and R.W. Chantrell, Phys. Rev. B **53** (9), 5493-5504 (1996).

26. Micromagnetics at a finite temperature using the ridge optimization method
A. Lyberatos and R.W. Chantrell, Phys. Rev. B **52** (6), 4301-4312 (1995).

27. A method for the numerical simulation of the thermal magnetization fluctuations in micromagnetics
A. Lyberatos, D.V. Berkov and R.W. Chantrell
J. Phys.: Condens. Matter **5**, 8911-8920 (1993).

28. Simulations of the magnetization reversal of clustered Co-Cr particles
M. Van Kooten, S. de Haan, J.C. Lodder, A. Lyberatos, R.W. Chantrell and J.J. Miles
J. Magn. Magn. Mater. **120**, 145-148 (1993)

29. Magnetic viscosity in perpendicular media
A. Lyberatos, R.W. Chantrell, E.R. Sterringa and J.C. Lodder
J. Appl. Phys **70 (8)**, 4431-4437 (1991)

30. Reversible changes during remanent magnetisation and demagnetisation processes in recording media
P.R. Bissell and A. Lyberatos
J. Magn. Magn. Mater. **95**, 27-34 (1991)

31. The coefficient of magnetic viscosity: II. The time dependence of the magnetisation of interacting fine particle magnetic materials
R.W. Chantrell, A. Lyberatos andE.P. Wohlfarth
J. Phys. F: Met. Phys. **16**, L145-L150 (1986)

32. A Monte Carlo simulation of the dependence of the coercive force of a fine particle assembly on the volume packing factor
A. Lyberatos and E.P. Wohlfarth
J. Magn. Magn. Mater. **59**, L1-L4 (1986)

33. Monte Carlo simulation of digital magnetic recording on particulate media
A. Lyberatos
IEEE Trans. Magn., **MAG-23**, 224-232 (1987)

34. Monte Carlo simulations of the ideal and modified anhysteretic remanent magnetisation of interacting fine particles : Application to ac bias recording
A. Lyberatos
J. Magn. Magn. Mater. **51**, 190-198 (1985)

35. Simulated annealing; an application in fine particle magnetism
A. Lyberatos, E.P. Wohlfarth and R.W. Chantrell
IEEE Trans. Magn.,**MAG-21**, 1277-1282 (1985)

36. Anhysteretic properties of interacting magnetic tape particles
R.W. Chantrell, A. Lyberatos and E.P. Wohlfarth
J. Appl. Phys. **55 (6)**, 2223-2225 (1984)

Refereed articles in International Conferences

1. Cluster Monte Carlo methods for the FePt Hamiltonian
A. Lyberatos and G.J. Parker
J. Magn. Magn. Mater. **400**, 266 (2016)

2. Memory erasure and write field requirements in HAMR using $L1_0$-FePt nanoparticles
A. Lyberatos, D. Weller and G.J. Parker
IEEE Trans. Magn. **50**, no.11, 2104304 (2014)

3. Recording layer influence on the dynamics of a soft underlayer
D. Litvinov, A. Lyberatos, J. Wolfson, J. Bain and S. Khizroev
IEEE Trans. Magn. **38**, no.5, 1994-1996 (2002)

4. High-speed coherent switching in fine grains
A. Lyberatos, S. Khizroev and D. Litvinov
IEEE Trans. Magn. **37**, no.4, 1369-1372 (2001)

5. The rate of domain growth in magneto-optic recording media
A. Lyberatos, J. Earl and R.W. Chantrell
J. Magn. Soc. Jap. **20**, Supplement, No S1, 377-379 (1996).

6. Analysis of the magnetic viscosity in M-O films II
J.S. Earl, A. Lyberatos, R.W. Chantrell and K. O' Grady, J. Magn. Magn. Mater. **155**, 367-369 (1996).

7. Activation volume of a pair of magnetostatically coupled particles
   A. Lyberatos
   J. Appl. Phys. **75** (10), 5704-5706 (1994).

8. Thermal fluctuations in a pair of magnetostatically coupled particles
   A. Lyberatos and R.W. Chantrell
   J. Appl. Phys. **73**, 6501-6503 (1993).

9. Calculation of the size dependence of the coercive force in fine particles
   A. Lyberatos and R.W. Chantrell
   IEEE Trans. Magn., **MAG-26**, 2119-2121 (1990)

10. Calculation of the time dependence in perpendicular thin films
    A. Lyberatos, R.W. Chantrell and A. Hoare
    IEEE Trans. Magn., **MAG-26**, 222-224 (1990)

11. Interaction fields and the anhysteretic susceptibility of recording media
    G.W.D. Spratt, M. Fearon, P.R. Bissell,R.W. Chantrell, A. Lyberatos and E.P. Wohlfarth
    IEEE Trans. Magn., **MAG-24**, 1895-1897 (1988)

12. Magnetic correlations in ac erased media: A contribution to tape noise
    M. Fearon, R.W. Chantrell, A. Lyberatos and E.P. Wohlfarth
    IEEE Trans. Magn., **MAG-23**, 174-176 (1987)

13. A description of the physics of magnetic recording media by means of a dynamic many-body model
    R.W. Chantrell, A. Lyberatos and E.P. Wohlfarth
    J. Magn. Magn. Mater. **54-57**, 1693-1694 (1986)

Seagate Internal Reports

1. Temperature variation of the coercivity of HAMR media. A summary of theoretical and experimental investigations
   K. Guslienko,A. Lyberatos, O. Mryasov, X. Wu, R. Chantrell and D. Weller,
   Seagate Internal Report 70136/03/1 (2003)

2. Fast cooling in HAMR: The superparamagnetic trap , A. Lyberatos and R.W.Chantrell,Seagate Internal Report 70146/04/2 (2004)

3. Thermoremanence for fast cooling rates: Application to heat-assisted magnetic recording
   A. Lyberatos and R.W.Chantrell,Seagate Internal Report 70146/04/3 (2003)

4. Fast cooling in HAMR: The superparamagnetic trap
   A. Lyberatos, Seagate Internal Report 70136/04/2, (2004).

5. A model of heat-assisted magnetic recording and thermal stability of the magnetization
   A. Lyberatos, Seagate Internal Report 70136/04/4. (2004)

6. Calculation of an isolated magnetic transition in heat-assisted magnetic recording
   A. Lyberatos, Seagate Internal Report 70136/05/4, (2005).

7. Freezing dynamics for 200 Gbit/in^2 heat-assisted recording
   A. Lyberatos, Seagate Internal Report 70136/05/9, (2005).

8. Micromagnetic model of single-layer composite HAMR media, A. Lyberatos, Seagate Internal Report 70136/05/10, (2005).

9. Recording model of single-layer composite HAMR media, A. Lyberatos, Seagate Internal Report 70136/06/1, (2006).

10. Calculation of the thermoremanent magnetization of fine particles reversal using Landau-Lifshitz-Bloch dynamics, A. Lyberatos, Seagate Internal Report 70136/07/1, (2007).

11. Micromagnetic model of femtosecond laser pulse induced magnetization reversal using Landau-Lifshitz-Bloch dynamics, A. Lyberatos, Seagate Internal Report 70136/07/2, (2007).

12. Thermal stability of exchange coupled matrix media, A. Lyberatos, Seagate Internal Report, 70153/08/19 (2008)

13. Thermal stability of coupled granular/continuous perpendicular media, A.Lyberatos, Seagate Internal Report, (2008)

14. Transition model of heat-assisted recording on thin films with perpendicular magnetic anisotropy, A. Lyberatos, Seagate Internal Report, (2008)