UNIVERSITATEA LUCIAN BLAGA DIN SIBIU
FACULTATEA DE ŞTIINȚE, CATEDRA DE FIZICĂ
STR. DR.ION RATIU, NR.7-9, 550012, SIBIU, ROMANIA
Tel: 40-69-217802, 40-69-216062/320, e-mail: depphysics@ulbsibiu.ro

Raport de cercetare al Catedrei de Fizica pe anul 2008

1. Colectivul Catedrei de Fizica

- Profesor Dr. Dorin Gh. Stoicescu
- Lector Dr. Aurel Pasca
- Profesor Dr. Dan Chicea
- Lector Dr. Eugen Barsan
- Asistent Dr. Mihaela Răcuciu

2. Facilitati de cercetare

Colectivul dispune de patru laboratoare dotate pentru cercetare in domeniile de competenta ale membrilor catedrei

3. Competente

- Lichide magnetice – sinteza, caracterizare, aplicatii;
- Nanofluide – sinteza, caracterizare, aplicatii
- Fízica computationala: Monte Carlo aplicat in studiul difuziei luminii pe suspensii, in studiul proprietăților sistemelor ordonate magnetic, in studiul proprietăților straturilor subțiri şi sistemelor nanostructurate
- Tranziții magnetice de fază
- Studiul difuziei luminii pe suspensii
- Efecte fototermice
- Bioelectromagnetism

4. Rezultate:

4.1 Lucrări ştiinţifice publicate în reviste cotate ISI:

1. MAGNETIC FLUID PARTICLE SIZING BY COHERENT LIGHT SCATTERING. COMPUTER SIMULATION RESULTS, Dan Chicea, Journal of Optoelectronics and Advanced Materials Vol. 10, No. 2, p. 264 – 268, February 2008.
2. HIGH ACCURACY PHOTOPYROELECTRIC INVESTIGATIONS OF DYNAMIC THERMAL PARAMETERS OF FLUIDS, Dorin Dadarlat, Camelia Neamtu, Mihaela Streza, Dan Chicea, Aurel Pasca, Journal of Optoelectronics and Advanced Materials Vol. 10, No. 2, p. 264 – 268, February 2008
3. COHERENT LIGHT SCATTERING ON RBCS - EXPERIMENTAL RESULTS AND POSSIBLE BIOMEDICAL APPLICATION, Dan Chicea,, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 10, No. 3, p. 689 – 692, March 2008.
4. COHERENT LIGHT SCATTERING ON NANOFLUIDS - COMPUTER SIMULATION RESULTS, Dan Chicea, Applied Optics, Vol. 47, No. 10 April 1, pp. 1434-1442, 2008.
5. NANOPARTICLE SIZING BY COHERENT LIGHT SCATTERING – COMPUTER SIMULATION RESULTS, Dan Chicea, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 10, No. 4, p. 813-818, April 2008.
6. APPLICATION OF WHOLE BLOOD COHERENT LIGHT SCATTERING DYNAMICS ANALYSIS, Dan Chicea, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 10, No. 8, p. 2163-2167 , July 2008.
7. STUDIES ON STATIC AND DYNAMIC LIGHT SCATTERING PROPERTIES OF WATER BASED MAGNETIC FLUID, Dan Chicea, Mihaela Răcuciu, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS, Vol 10, No.12, Dec., 2008, p. 3317-3321.
8. STRUCTURAL INVESTIGATIONS OF SOME TRANSITIONAL METALS WITH HYSTIDINE AS LIGAND, A. MARCU, A. STANILA, M. RUSU, D. CHICEA, L. DAVID, JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 10, No. 9, September 2008, p. 2351 – 2354
9. DIMENSIONAL COMPARATIVE STUDY OF MAGNETIC NANOPARTICLES DISPERSED IN WATER OR KEROSENE, M. Răcuciu, D.E. Creangă, N. Apetroaie, E. Birsan,, Journal of Optoelectronics and Advanced Materials, 10(2), p.280-283, 2008.

10. SYNTHESIS METHOD INFLUENCE ON WATER BASED MAGNETIC FLUID PROPERTIES, M. Răcuciu, D.E. Creangă, A.Airinei, V.Bădescu, Journal of Optoelectronics and Advanced Materials, 10(3), 2008, p.635-638.
11. MAGNETIC FLUIDS AS DRUG CARRIER IN MAGNETICALLY ASSISTED CHEMOTHERAPY - AN EXPERIMENTAL STUDY, D. Creangă, Gh. Iacob, M. Ursache, C. Nadejde, M. Răcuciu, Journal of Optoelectronics and Advanced Materials, 10(3), 2008, p.628-631.
12. ROOM TEMPERATURE SYNTHESIS OF MAGNETIC NANOPARTICLES, M. Răcuciu, D.E. Creangă, A. Airinei, V. Bădescu, Journal of Optoelectronics and Advanced Materials, Vol 10, No.11, Nov., 2008, p. 2928-2931.
13. DOUBLE-LAYER THIN FILMS MAGNETIC PROPERTIES DEPENDENCE ON ANISOTROPIC HEISENBERG MODEL PARAMETERS, E. Bîrsan, Modern physics letters B, 22 (17), p.1683-1794, 2008.
14. MONTE CARLO STUDY ON INDUCED ANTIFERROMAGNETIC PHASE IN BILAYER FILMS USING ANISOTROPIC EXTENDED HEISENBERG MODEL, E. Bîrsan, R.Chis, A. Dobrita, Acta Physica Polonica A,113 (6), p.1701-1707, 2008.
15. MONTE CARLO STUDY ON BILAYER THIN FILMS MAGNETIC PROPERTIES DEPENDENCE WITH DISCONTINUOUS ANISOTROPY PARAMETERS, E. Bîrsan, Central European Journal of Physics,6 (2), p.296-305, 2008.
16. THE SUPEREXCHANGE INTERACTION INFLUENCE ON THE MAGNETIC ORDERING IN MANGANITES, E. Bîrsan, Journal of Magnetism and Magnetic Materials, 320 (5), p. 646-650, 2008.

4.2 Lucrări ştiințifice publicate în reviste indexate ISI:

1. ON HEAVY METAL LEVELS VARIATION IN TARNAVA MARE RIVER DURING 2003, Dan Chicea, Adriana Morariu, Mihaela Racuciu, Romanian Journal of Physics, Vol. 53, Nos. 1-2, pp. 165-170, 2008.
2. RESULTS OF ZEA MAYS SEEDS B- IRRADIATION IN 0 - 5 GY RANGE, Dan Chicea, Mihaela Racuciu, Romanian Journal of Physics, Vol. 53, Nos. 1-2, pp 171-177, 2008.
3. RESULTS OF PHYSICAL AND CHEMICAL PARAMETERS MONITORING OF THE "RÂULUI MARE" RIVER Letitia Oprean, Dan Chicea, Eniko Gaspar, Ecaterina Lengyel, Romanian Journal of Physics, Vol. 53, Nos. 7-8, 2008.

4. MAGNETITE PARTICLE UTILIZATION FOR BLOOD VESSEL EMBOLIZATION - A PRACTICAL MODELING, Gh. Iacob, Al. D. Ciochină, O. Bredeţean, M. Răcuciu, Optoelectronics and Advanced Materials – Rapid Communications, 2(7), July 2008, p. 446 – 449.
5. SIZE ANALYSIS OF BIOCOMPATIBLE MAGNETIC NANOPARTICLES COLLOIDS, M. Răcuciu, N. Apetroaie, D.E. Creangă, Optoelectronics and Advanced Materials – Rapid Communications, 2(4), 2008, p. 212 – 215.
6. THE INFLUENCE OF EXTREMELY LOW FREQUENCY MAGNETIC FIELD ON TREE SEEDLINGS, M. Răcuciu, D.E. Creangă, Gh. Călugăru, Romanian Journal of Physics, 53(1-2), p.337-342, 2008.
7. RESULTS OF ZEA MAYS SPEEDS B- IRRADIATION IN 0-5 GY RANGE, Dan Chicea, Mihaela Răcuciu, Romanian Journal of Physics, 53(1-2), p.163-168, 2008
8. PLANT GROWTH UNDER STATIC MAGNETIC FIELD INFLUENCE, M. Răcuciu, D. Creangă, I. Horga,Romanian Journal of Physics, 53(1-2), p. 331-336, 2008
9. STABILITY OF METALLIC FERROMAGNETISM CORRELATED HOPPING OF ELECTRONS IN MN4N, E. Bîrsan, C. Candin, Romanian Journal of Physics, 53, (1-2), p.261-266, 2008
10. ELECTRONIC CORRELATION APPROACH IN ITINERANT FERROMAGNETISM, E. Bîrsan, C. Candin, Romanian Journal of Physics, 53, (1-2), p.267-272, 2008

5. Contracte de cercetare

1. ***STUDIUL UNOR EFECTE BIOLOGICE ALE FLUIDELOR MAGNETICE BIOCOMPATIBILE***, CNCSIS 1379/2007, continuare si in 2008, 2007-2008, (Membru în echipa de cercetare)

2. ***TEHNOLOGII MODERNE NECONVENŢIONALE, CONFORME CU REGLEMENTĂRILE EUROPENE, DE EPURARE A APELOR UZATE ŞI TRATARE A NĂMOLULUI REZIDUAL ÎN SCOPUL REUTILIZĂRII ACESTUIA,*** CEEX, 2006-2008, (Membru în echipa de cercetare)

3. **CENTRU DE DEZVOLTARE BIONANOTEHNOLOGII CU APLICATII IN IMUNOLOGIE, HEMATOLOGIE, ONCOLOGIE SI TOXICOLOGIE ACRONIM *NANOIHOT,*** program IMPACT, 1219 din 11.01.2008.(Membru în echipa de cercetare)