# LISTA LUCRARI

## CRISTIAN TOMA

1. **Teza de Doctorat:**

T1**:** **Cristian Toma**, *Instabilităţi şi controlabilitate în optoelectronică,* Universitatea Politehnica, Bucuresti, 2003

2. **Carti si indrumare publicate**

**Ca: -** Carti si manuale publicate

**Ca1**: Mihaela Ghelmez (Dumitru), **Cristian Toma**, *Fizica – Culegere de texte si note de curs pentru studentii facultatilor de profil mecanic*, Editura Printech, Bucuresti (ISBN 973-718-629-X), 200 pagini, 2006

**Ca2**: **Cristian Toma**, Mihaela Ghelmez (Dumitru), *Fizica – Note de curs si aplicatii*, Editura Printech, Bucuresti (ISBN 973-718-349-5), 204 pagini, 2005

Ca3: Mihaela Ghelmez (Dumitru), **Cristian Toma ,** *Fizica – partea a II-a*, , Editura Printech, Bucuresti (ISBN 973-718-001-1), 278 pagini, 2004

Editor: BIRD 2008 Proceedings, Springer: Communications in Computer and Information Science, Volume 13 2008, Bioinformatics Research and Development, Second International Conference, BIRD 2008 Vienna, Austria, July 7-9, 2008 Proceedings - Editors: Mourad Elloumi, Josef Küng, Michal Linial, Robert F. Murphy, Kristan Schneider, Cristian Toma
ISBN: 978-3-540-70598-7 (Print) 978-3-540-70600-7 (Online)

**I, D :** Indrumare si culegeri publicatei

**I1**: *Elemente de aprofundare a lucrarilor de laborator de fizica solidului (indrumar),* Mihaela Ghelmez (Dumitru), Stefan Pusca, **Cristian Toma**, Andreea Sterian, Gheorghe Popescu, Editura Printech, Bucuresti (ISBN 973-718-310-X), 107 pagini, 2005

I2: *Elemente de aprofundare a lucrarilor de laborator de optica (indrumar),* Mihaela Ghelmez (Dumitru), **Cristian Toma**, Stefan Pusca, Andreea Sterian, Editura Printech, Bucuresti (ISBN 973-652-694-9-53), 167 pagini, 2004

3. **Articole publicate in reviste de specialitate**

**a) Ris -** articole publicate în reviste de specialitate de circulaţie internaţională recunoscute cotate ISI:

**Ris1** **Cristian Toma,** *Wavelets-Computational Aspects of Sterian Realistic Approach to Uncertainty Principle in High Energy Physics: A Transient Approach*, Advances in High Energy Physics, Volume 2013 (2013), Factor Impact 3.5 pe 2012, AIS 1.22 pe 2012, ISSN 1687-7357, Article ID 735452, 6 pages

**Ris2** Ezzat G. Bakhoum, **Cristian Toma,** *Transient Aspects of Wave Propagation Connected with Spatial Coherence*, Mathematical Problems in Engineering, Volume 2013 (2013), Factor Impact 1.383 pe 2012, AIS 0.216 pe 2012, eigenfactor 0.00284 pe 2012, ISSN 1024-123X, Article ID 691257, 5 pages

**Ris3** Ezzat G. Bakhoum, **Cristian Toma**, *Modeling Transitions in Complex Systems by Multiplicative Effect of Temporal Patterns Extracted from Signal Flows*, Mathematical Problems in Engineering, Volume 2012 (2012), Factor Impact 1.383 pe 2012, AIS 0.216 pe 2012, eigenfactor 0.00284 pe 2012, ISSN 1024-123X, Article ID 409856, 11 pages

**Ris4** **Cristian Toma,** *Advanced Signal Processing and Command Synthesis for Memory-Limited Complex Systems ,* Mathematical Problems in Engineering, Volume 2012 (2012), Factor Impact 1.383 pe 2012, AIS 0.216 pe 2012, eigenfactor 0.00284 pe 2012, ISSN 1024-123X, Article ID 927821, 13 pages

**Ris5** Ezzat Bakhoum, **Cristian Toma,** *Specific Mathematical Aspects of Dynamics Generated by Coherence Functions ,* Mathematical Problems in Engineering, Volume 2011 (2011), Factor Impact 0.777 pe 2011, AIS 0.216 pe 2011, eigenfactor 0.00285 pe 2011, ISSN 1024-123X, Article ID 436198, 10 pages

**Ris6** Ezzat Bakhoum, **Cristian Toma,** *Dynamical Aspects of Macroscopic and Quantum Transitions due to Coherence Function and Time Series Events,* Mathematical Problems in Engineering, Volume 2010 (2010), Factor Impact 0.689 pe 2010, AIS 0.199 pe 2010, eigenfactor 0.00185 pe 2010, ISSN 1024-123X, Article ID 428903, 13 pages

**Ris7**  **Ghiocel Toma,** *Specific Differential Equations for Generating Pulse Sequences,* Mathematical Problems in Engineering, Volume 2010 (2010), Factor  Impact 0.689   pe 2010, AIS 0.199 pe 2010, eigenfactor 0.00185 pe 2010, ISSN 1024-123X, Article ID 324818, 11 pages

**Ris8**  Ezzat Bakhoum, **Cristian Toma,** *Mathematical Transform of Traveling-Wave Equations and Phase Aspects of Quantum Interaction,* Mathematical Problems in Engineering, Volume 2010 (2010), Factor Impact  0.689  pe 2010, AIS 0.199 pe 2010, eigenfactor 0.00185 pe 2010, ISSN 1024-123X, Article ID 695208, 15 pages

**Ris9**  **Ghiocel Toma,** Flavia Doboga, *Vanishing waves on closed intervals and propagating short range phenomena,*  Mathematical Problems in Engineering, Volum 2008, Factor Impact 0.54 pe 2008, AIS 0.287 pe 2008, eigenfactor 0.00145 pe 2008,  ISSN 1024-123X, Article ID 359481, 14 pages

**Ris10**  Ezzat Bakhoum, **Cristian Toma,**  *Relativistic short range phenomena and spactime aspects of pulse measuremets eiscoelastic behaviour of the technical polymers by bidiemnsional pulses generation,* Mathematical Problems in Engineering, Volum 2008, Factor Impact 0.54 pe 2008, AIS 0.287 pe 2008, eigenfactor 0.00145 pe 2008,  ISSN 1024-123X, Article ID 410156, 20 pages

**Ris11**   Stefan Pusca, Maria Paun, **Cristian Toma,**  *Viscoelastic behaviour of the technical polymers by bidiemnsional pulses generation,*  Materiale Plastice vol. 44, nr.1, ISSN 0025-5289 (Factor impact  0.40 pe 2007), AIS 0.033 pe 2007, eigenfacor 0.00021 pe 2007,  pag. 39-43, 2007

**Ris12 :** Crina Turcas, **Cristian Toma**, Stefan Pusca, Elisabeta Ciocan,  *Analiza unor parametri fizico-chimici si biologici ai apelor in scopul determinarii gradului de poluare,* Revista de Chimie nr. 3,  ISSN 0034-7752, (Factor impact : 0.28 pe 2006), AIS 0.018 pe 2006, eigenfactor 0.00047 pe 2006,  pag. 322-326, 2006

**Ris13 :** Aexandru .Paun, **Cristian Toma**, Stefan Pusca,  *Calculation of polymer flow through the nanopores,* Materiale Plastice vol. 43, nr.1, ISSN 0025-5289  (Factor impact 0.31 pe 2006), AIS 0.031 pe 2006, eigenfactor 0.00017 pe 2006  pag. 68-69,  2006

**Ris14 :** Mihaela Ghelmez, Bogdan Dumitru, **Cristian Toma**,  Elena Slavnicu, Razvan Trascu,  Andreea Sterian,  Constantin Georgescu,  *The effect of neutron irradiation on fatty acids and computer modelling,* Journal of Optoelectronics and Advanced Materials vol..8, nr. 1, ISSN 1454-4164 (Factor impact : 1.10 pe 2006), AIS 0.13 pe 2006, eigenfactor  0.0035 pe 2006,  pag. 172-176, 2006

**Ris15 :** Bogdan Lazar, Andreea Sterian, Stefan Pusca, Viorel Paun, **Cristian Toma**, Cristian Morarescu, *Simulating delayed pulses in organic materials*, Lecture Notes Computer Science vol.3980, ISSN 0302-9743 (Factor impact: zero pe 2006, 0.42 pe 2005), pag.779-785, 2006

**Ris16:** Dan Iordache, Stefan Pusca, **Ghiocel Toma**, Viorel Paun, Andreea Sterian, Cristian Morarescu, *Analysis of compatibility with experimental data of fractal descriptions of the fracture parameters,* Lecture Notes Computer Science vol.3980, ISSN 0302-9743  (Factor impact: zero pe 2006, 0.42 pe 2005), pag.804-814, 2006

**Ris17:** Mihaela Ghelmez (Dumitru), Bogdan Lazar, **Cristian Toma**, Bogdan Dumitru, Elena Slavnicu, *Valuri ultrasonice in masa  si de suprafata generate de solide metalice prin surse sub forma de impuls,* Revista de Chimie nr. 7, ISSN 0034-7752 (Factor impact: 0.28 pe 2006), AIS 0.018 pe 2006, eigenfactor 0.00047 pe 2006,   pag. 722-725, 2006

**Ris18:** Adrian Podoleanu,  **Cristian Toma**, Cristian Morarescu, Alexandru Toma, Theodora Toma, *Specific aspects of training IT students for modeling pulses in physics,* Lecture Notes Computer Science vol.3482, ISSN 0302-9743  (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor  0.032 pe 2005, pag. 556-563, 2005

**Ris19:** Flavia Doboga, **Ghiocel Toma**, Mihaela Ghelmez, Stefan Pusca, Cristian Morarescu, *Filtering aspects of practical test-functions and the ergodic hypothesis,* ,  Lecture Notes Computer Science vol.3482, ISSN 0302-9743  (Factor impact: 0.42 pe 2005),  AIS 0.21 pe 2005, eigenfactor  0.032 pe 2005,  pag. 563-569, 2005

**Ris20: Ghiocel Toma,,**  *Practical test functions generated by computer algorithms,*  Lecture Notes Computer Science vol.3482, ISSN 0302-9743 (Factor impact: 0.42 pe 2005),  AIS 0.21 pe 2005, eigenfactor  0.032 pe 2005,  pag.576-584, 2005

**Ris21:** Andreea Sterian, **Ghiocel Toma,,**  *Possibilities for obtaining the derivative of a received signal using computer driven second order oscillator,* Lecture Notes Computer Science vol.3482, ISSN 0302-9743  (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor  0.032 pe 2005, pag.585-591, 2005

**Ris22: Cristian Toma**, Andreea Sterian:,  *Statistical aspects of acausal pulses in physics and wavelets applications,* Lecture Notes Computer Science vol.3482, ISSN 0302-9743  (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor  0.032 pe 2005,  pag.598-604, 2005

**Ris23:** Rodica Sterian, **Cristian Toma,** *Simulating laser pulses by practical test functions and progressive waves,* , Lecture Notes Computer Science vol.3482, ISSN 0302-9743 (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor 0.032 pe 2005, pag.592-598, 2005

**Ris24:** Minas Simeonidis, Stefan Pusca, **Ghiocel Toma**, Alexandru Toma, Theodora Toma, *Definition of wave-corpuscle interaction suitable for simulating sequences of physical pulses*, , Lecture Notes Computer Science vol.3482, ISSN 0302-9743 (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor 0.032 pe 2005, pag.569 - 576, 2005

**Ris25:** Dan Iordache, Stefan Pusca, **Ghiocel Toma**, *Numerical analysis of some typical finite differences simulations of the waves propagation through different media,* Lecture Notes Computer Science vol.3482, ISSN 0302-9743 (Factor impact: 0.42 pe 2005), AIS 0.21 pe 2005, eigenfactor 0.032 pe 2005, pag.614 - 621, 2005)

**Ris26:** Mihaela Ghelmez (Dumitru), Bogdan Dumitru, Elena Slavnicu, Dan Slavnicu, **Cristian Toma**, Andreea Sterian, *Study of laser field of some irradiated fatty acids in liquid crystal state,* Revista de Chimie nr.7, 2005, ISSN 0034-7752 (Factor impact : 0.27 pe 2005), AIS 0.016, eigenfactor 0.00037, pag. 762-763, 2005

**Ris27:** Mihaela Ghelmez, **Cristian Toma**, Mihai Piscureanu, Andreea Sterian, *Laser signal's nonlinear change in fatty acids,* Chaos, Fractals and Solitons 17, Vol. 2-3, ISSN 0960-0079, (Factor impact 1.06 pe 2003), AIS 0.27 pe 2003, eigenfactor 0.0086 pe 2003, pag. 405-409, 2003

**Ris28:** Mihaela Ghelmez, **Cristian Toma**, Paul Sterian, *Study of some laser signals emerging from nonlinear optical media,* , Computer Physics Communications 147, Vol. 1-2, ISSN 0010-4655 (Factor impact 1.20 pe 2002) , AIS 0.88 pe 2002. eigenfactor 0.028 pe 2002, pag. 633-636 , 2002


**b) Rin –** : article publicate in alte reviste de circulatie internationala
Rin1: Paul Sterian, **Cristian Toma,** *Methods for presenting key concepts in physics for MS students by Photon-MD program,* Bulgarian Journal of Physics 27, No. 4, ISSN 1310-0157, pag. 27-30, 2000
Rin2: **Cristian Toma,** *About some space relations of the electromagnetic interaction,* , Revue Roumaine des Sciences Techniques, Serie Electrotechnique et Energetique, ISSN 0035- 4066, Vol .34, nr. 3, 431-435, 1989


**d) Rno –** articole publicate în alte reviste de specialitate de circulație națională
**Rno1**: **Cristian Toma,** Mihaela Ghelmez, Andreea Sterian, Mihai Piscureanu, *Invariance properties of differential equations used for generating practical test functions in averaging procedures,* Romanian Journal of Optoelectronics Vol. 9, No. 1, ISSN 1453- 0600, pag. 33-37, 2005
Rno2: **Cristian Toma,** *The possibility of appearing acausal pulses as solutions of the wave equation,* , The Hyperion Scientific Journal (Mathematics, Physics and Electrical Engineering), vol. 4, no. 1, ISSN 1582-4330, pag. 25-29, 2004

### 4. Articole/studii publicate în volumele unor manifestări ştiinţifice

**a) Vi** – articole publicate în volumele unor manifestări ştiinţifice internationale recunoscute
Vi1: Mihaela Ghelmez (Dumitru), Elena Slavnicu, **Cristian Toma**, Andreea Sterian, Razvan Trascu, *Laser study of thermal neutron irradiation influence on simple biological membrane models,* , SPIE Proceedings vol. 5830 – 13th International School on Quantum Electronics- Laser Physics and Applications, Bourgas, Bulgaria, ISSN 0277-786X, pag. 444-448, 2004
Vi2: Andreea Sterian, **Cristian Toma,,** *Phase detection for vibration measurements based on test functions,,* SPIE Proceedings vol. 5503 - Sixth International Conference on Vibration Measurements by Laser Techniques-Ancona, Italy, ISSN 0277-786X, pag. 164-168, 2004
Vi3: **Cristian Toma,** *Equations with partial derivativs and differential equations used for simulating acausal pulses,* International Conference Physics and Control Physcon 2003, 20-22 August, Sankt-Petersburg, Russia, ISBN 0-7803-7939X, pag. 1178-1183, 2003
Vi4: Andreea Sterian, **Cristian Toma** , *Filtering possibilities for processing optoelectronic current for acceleration measurements,* SPIE Proceedings vol. 4827 - Fifth International Conference on Vibration Measurements by Laser Techniques-Ancona, Italy, pag. 403-408, ISSN 0277-786X, 2002
Vi5: **Cristian Toma,** *Filtering possibilities based on oscillating systems for optoelectronic signals,* , SPIE Proceedings vol. 4430 – ROMOPTO 2000 – Sixth Conference on Optics, Bucharest, 2001 , ISSN 0277-786X pag. 842-845, 2001

Vi6: **Cristian Toma,** *An extension of the notion of observability at filtering and sampling devices,* ̗ SCS 2001 Proceedings International Symposium on Signals, Circuits and Systems Iaşi, Romania, ISBN 973-8050-99-5, pag. 233-236, 2001

Vi7: **Cristian Toma,** *The necessity for using oscillating systems for sampling optoelectronic signals,,,* Proc.of the 4th Gen.Conf.of the Balkan Phys.Union, Veliko-Turnovo, Bulgaria, 22-25 August 2000 - in Bulgarian Journal of Physics 27, Suppl. 2, ISSN 1310-0157, pag. 187-190, 2000

Vi8: **Cristian Toma,** *A connection between special relativity and quantum theory based on non-commutative properties and system – wave interaction,* Proc.of the 3rd Gen.Conf.of the Balkan Phys.Union, Cluj-Napoca, Romania, 2-5 sept.1997 - in Balkan Physics Letters Supplement 5, pag. 2509-2513, ISSN 1301- 8329, 1997

Vi9: **Cristian Toma**, Paul Sterian, *Theoretical control method available for fast variable optoelectronic phenomena*, Proc.of the 3rd Gen.Conf.of the Balkan Phys.Union, Cluj-Napoca, Romania, 2-5 sept.1997 - in Balkan Physics Letters Supplement 5, ISSN 1301- 8329, pag. 2059-2062, 1997

Vi10: **Cristian Toma,** *The advantages of presenting special relativity using modern concepts,* ̗ Proc.of the 3rd Gen.Conf.of the Balkan Phys.Union, Cluj-Napoca, Romania, 2-5 sept.1997 - in Balkan Physics Letters Supplement 5**,** ISSN 1301- 8329, pag. 2334-2337, 1997

**b)Vn-** – articole publicate în volumele unor manifestări ştiinţifice naţionale

Vn1: **Cristian Toma,** *The use of the cuadridimensional interval – the main possibility for improving the Lorentz formulae interpretation*, Lucrările simpozionului ECIT - 97 , Piteşti , noiembrie -1997 , vol . 2 , pag. 202 – 206

Vn2: **Cristian Toma,** *Control method available for fast variable optoelectronic phenomena*, Lucrările simpozionului ECIT - 97 , Piteşti , noiembrie -1997 , vol . 2 , pag. 198 – 202

Vn3: **Cristian Toma,** *A wave – corpuscule interpretation of measuring principles in restrained relativity theory,* Lucrările simpozionului ECIT - 97 , Piteşti , noiembrie -1997 , vol . 2 , pag. 194 – 198

Vn4: **Cristian Toma,** *A connection between special relativity and quantum theory based on non-commutaive properties*, Lucrările simpozionului ECIT - 97 , Piteşti , noiembrie -1997 vol . 1 , pag. 138 – 142

Vn5: **Cristian Toma,** *Some procedures for rejecting the influence of switchimg phenomena in sampling devices* , Lucrările simpozionului ECIT - 97 , Piteşti , noiembrie -1997 vol . 1 , pag. 134 – 138

## 5. Carti de specialitate publicate in edituri recunoscute:

**Cb1:** **Cristian Toma,** Cristian Morarescu, *Aspecte specifice ale modelarii, simularii si achizitiei datelor utilizand functii test practice,* Editura Printech, Bucuresti (ISBN 978-606-521-198-8), 200 pagini, 2008

Cb2: **Cristian Toma**, *Elemente de fizica matematica pentru invatamantul tehnic*, Editura MatrixRom, Bucuresti ((ISBN 973-685-711-5) 220 pagini, 2004

## 6, Brevete de inventie

B1: **Cristian Toma,** Dispozitiv şi metodă de filtrare a semnalului optic de înaltă frecvenţă, Nr. Brevet invenţie acordat: 105124 / 03.01 1989

B2: **Cristian Toma,** Paul Sterian, *Dispozitiv de amplificare a fasciculelor optice,* Nr. Brevet invenţie acordat: 109131 / 19.08.1993

B3: **Cristian Toma,** Dispozitiv şi metodă de filtrare a semnalului optic de înaltă frecvenţă, Nr. Brevet invenţie acordat: 105124 / 03.01 1989

## 7.Proiecte de cercetare-dezvoltare-inovare:

a1) obţinute prin competiţie pe bază de contract/grant în ţară

**Pn1 :** participant – Contract de cercetare stiintifica – Programul National PN2 Nr. 71-051/18.09.2007 "Determinarea radioactivitatii secundare induse in hadronoterapia cu protoni si ioni grei", Beneficiar MECT, valoare 2 milioane RON, durata 2007-2010, Director prof. Dr. Fiz. Gheorghe Cata-Danil – membru in echipa de cercetare

**Pn2** : participant - Contract de cercetare stiintifica – Program National RELANSIN Nr. 1775/2003 (Nr. 18-04-02 UPB) "Combina de observare zi/noapte cu echipament de termoviziune fara sistem de racire" , Beneficiar AMCSIT-MEC, Valoare 200 milioane ROL, Durata 2003-2005, 3 ani (Director Prof. Paul Sterian) – responsabil cu diseminarea rezultatelor stiintifice si tehnice obtinute (organizare workshop in cadrul unor conferinte internationale de prestigiu – ICCSA 2006, Glasgow)

<u>**Pn3 :**</u> participant - Contract de cercetare stiintifica – Program National RELANSIN Nr. 1774/2003 (Nr. 18-03-07 UPB) "Sistem de achizitie a tintelor cu telemetru laser 1.54 micrometri", Beneficiar AMCSIT-MEC, Valoare 1, 5 miliarde ROL, Durata 2003-2005, 3 ani (Director Prof. Paul Sterian) – membru in echipa de cercetare

<u>Pn4</u> : participant - Contract de cercetare stiintifica – Program National RELANSIN Nr. 1756/2003 (Nr. 18-04-01 UPB) "Echpamnet de diagnoza neconventionala IRTEST", Beneficiar AMCSIT-MEC, Valoare 200 milioane ROL, Durata 2003-2005, 3 ani (Director Prof. Paul Sterian) – membru in echipa de cercetare

a2) obținute prin competiție pe bază de contract/grant în strainatate

<u>**Pi1 :**</u> **Director-Coordonator la Proiectul International** de Cercetare, Organizare de Workshop pentru Prezentarea Rezultatelor si Activitati Conclusive cu Publicare in ISI Web of Science - "PETRIN" (Perturbatii, Tranzitii, Interventii) – beneficiar Organizatia DEXA (orientata spre baze de date expert si afiliata Universitatii Tehnice din Viena), grant obtinut prin competitie in Ianuarie 2008, derulat in intervalul Ianuarie 2008-Decembrie 2008, colectiv autori: **Cristian Toma**, Flavia Doboga (ITT Industries), Carlo Cattani (Universitatea din Salerno)

<u>Pi12</u> : participant - Contract EVG-CT-2002 – 00062 (OPTSDET) derulat prin Centrul UPB-CCSFA in cadrul prgramului FP-5 al Comunitatii Europene (Director de Contract Conf. Emil Smeu), in perioada 2002-2006 – in calitate de responsabil cu diseminarea rezultatelor stiintifice si tehnice obtinute (organizare workshop in cadrul unor conferinte internationale de prestigiu – ICCSA 2005, Singapore)

**b)** alte proiecte de cercetare-dezvoltare

F1: Director - Contract de cercetare stiintifica 'Dispozitiv de filtrare a semnalului electric si optoelectronic cu frecventa de 20 Mhz pentru conditii industriale de mediu" derulat prin centrul FOCUM al departamentului de Fizica, UPB, Beneficiar- VIMAR-ELECTRO S.R.L., Perioada August-Decembrie 2002, valoare contract 10 milioane ROL,