

ACADEMIA OAMENILOR DE ȘTIINȚĂ DIN ROMANIA
SECȚIA DE ȘTIINȚA ȘI TEHNOLOGIA INFORMAȚIEI

RAPORTUL DE ACTIVITATE AL SECȚIEI DE ȘTIINȚA
ȘI TEHNOLOGIA INFORMAȚIEI PE ANUL 2014

A fost realizat integral Planul de activități pe anul 2014

I. Comunicări științifice în cadrul secției:

Nr. crt	Titlul comunicării	Autori (moderatori)	Data susținerii	Locul desfășurării
1.	Raportul de activitate al Secției STI pe anul 2013 și Planul de activități pe anul 2014 (Dezbatere)	Prof.univ.emerit, dr.ing. Paul Sterian, Președintele secției	28.01.2014	AOȘR – sala Drepturile Omului
2.	A New Concept for on-Chip Differential Resonant Gyro and Pressure Nanosensor	C.S.I. dr. ing.Cornel Cobianu	25.02.2014	AOȘR – sala Drepturile Omului
3.	O analiză asupra proiectării circuitelor de transmisie de bandă largă utilizate în aplicațiile moderne pe cablu coaxial	Prof.univ.dr.ing. Mircea Bodea + Dr. ing. Silvian Spiridon	25.03.2014	AOȘR – sala Drepturile Omului
4.	Sonificarea interacțiunilor	Prof.univ.dr.ing Ștefan Trăușan-Matu	29.04.2014	AOȘR – sala Drepturile Omului

5.	Organizația economică modernă și cultura consacrată creșterii eficienței cunoașterii	Prof.univ.dr.ing. Ștefan Iancu	24.06.2014	AOȘR – sala Drepturile Omului
6.	Metode de creștere a conținutului informațional in imaginile furnizate de aparatura de observare pe timp de noapte și în condiții dificile	C.S.I. dr. ing. Cătălin Spulber	30.09.2014	AOȘR – sala Drepturile Omului
7.	Quantum modeling of telepathy	Prof.univ.emerit dr.ing. Paul Sterian	28.10 .2014	AOȘR – sala Drepturile Omului
8.	Surse de alimentare pentru LEDuri	Prof.univ.dr. ing. Gheorghe Brezeanu	25.11.2014	AOȘR – sala Drepturile Omului

II.

ORGANIZAREA DE CĂTRE SECȚIA ȘTI, SUB EGIDA AOȘR ȘI UPB, A CONFERINȚEI INTERNAȚIONALE THE 4RD INTERNATIONAL COLLOQUIUM “PHYSICS OF MATERIALS” (PM-4), 15-16 NOVEMBER 2014, BUCHAREST, ROMANIA.

<http://www.upb.ro/files/conferinta-PM-4-2014/prezentare.html>

III. Activitatea editorială.

A fost publicat Nr.1 /2014(VOL.7) din Analele AOȘR, Seria STI și este în curs de publicare Nr.2 /2014(VOL.7) din Analele AOȘR, Seria STI.

IV. LABORATORUL DE FOTONICĂ și IMAGISTICĂ AL AOSR

Membrii Secției STI s-au implicat, în fundamentarea acestui proiect.

Responsabili din partea Secției STI au fost:

**C.S.I. dr. ing. Cătălin Spulber,
Prof.univ.emerit dr.ing. Paul Sterian**

V. IMPLEMENTAREA PLATFORMEI ONLINE

"THE ANNALS OF THE ACADEMY OF ROMANIAN SCIENTISTS, SERIES ON SCIENCE AND TECHNOLOGY OF INFORMATION"

Responsabil din partea Secției STI este și rămâne:

Prof.univ.dr.ing. Ștefan Trăușan- Matu

V..Participarea Secției STI la activitățile AOSR

1. Participarea Președintelui Secției STI la activitatea Consiliului Științific AOSR. Consultări periodice cu conducerea AOȘR privind problemele Secției și alte probleme ale AOSR.

2. Prezentarea in cadrul Colectivului Editorial al AOȘR a comunicării:

"Platforma online pentru gestiunea publicației "THE ANNALS OF THE ACADEMY OF ROMANIAN SCIENTISTS, SERIES ON SCIENCE AND TECHNOLOGY OF INFORMATION".

Prof.univ.dr.ing. Ștefan Trăușan- Matu

3. Prezentarea in cadrul Centrului de cercetare al AOȘR a comunicării:

"Laboratorul de Fonică și Imagistică al AOȘR"

**C.S.I. dr. ing. Cătălin Spulber,
Prof.univ.emerit dr.ing. Paul Sterian**

VI. Alegerea de noi membri ai Secției STI:

Membri titulari

Propunerile Secției de Știința și Tehnologia Informației ca Domnul

Prof.univ.dr.ing. Ștefan Trăușan- Matu

să devină membru titular AOȘR, a fost aprobată de Adunarea Generală
AOȘR

V. Contribuția membrilor Secției STI la creșterea prestigiului AOȘR.

1. Prof.univ. emerit, dr. ing. Paul Sterian, președintele Secției STI, membru titular al Academiei Oamenilor de Știință din România

A. Organizarea unor manifestări științifice

Paul STERIAN - Chairman of the The fourth edition of the International Colloquium 'Physics of Materials' - PM-4. organized by the University POLITEHNICA of Bucharest, and The Academy of Romanian Scientists, November 13-14, 2014, Bucharest, Romania.

B. Articole publicate în reviste cotate ISI, 2014

1. The mass-hierarchy and CP-violation discovery reach of the LBNO long-baseline neutrino experiment

By: Agarwalla, S. K.; Agostino, L.; Aittola, M.; ,..... P. Sterian et al.

Group Author(s): LAGUNA-LBNO Collaboration

JOURNAL OF HIGH ENERGY PHYSICS Issue: 5 Article Number: 094

Published: MAY 21 2014, **Impact Factor 2013: 6.220**

2. STUDY OF THE NUMERICAL PHENOMENA MET IN THE EVALUATION OF THE MAIN PHYSICAL PARAMETERS OF CCDS BY THE CLASSICAL GRADIENT METHOD

By: lordache, Dan A.; Sterian, Paul E.; Tunaru, Ionel

UNIVERSITY POLITEHNICA OF BUCHAREST SCIENTIFIC BULLETIN-SERIES A-APPLIED MATHEMATICS AND PHYSICS Volume: 76 Issue: 4 Pages: 255-270

Published: 2014.

Publications of the Neutrino Physics and Cosmology Group

1 Optimised sensitivity to leptonic CP violation from spectral information: the LBNO case at 2300 km baseline.

S.K. Agarwalla, L. Agostino, M. Aittola,..... P. Sterian, S. Stoica, C. Strabel, J. Suhonen, V. Suvorov, G. Toma, A. Tonazzo, Wladyslaw....., e-Print: arXiv:1412.0804 [hep-ph].

2. The LBNO long-baseline oscillation sensitivities with two conventional neutrino beams at different baselines.

S.K. Agarwalla, L. Agostino, M. Aittola,..... P. Sterian, S. Stoica, C. Strabel, J.

Suhonen, V. Suvorov, G. Toma, A. Tonazzo, Wladyslaw....., e-Print:
arXiv:1412.0804 [hep-ph].

C. Sesiunea Științifică de Toamnă a AOSR 19 – 20 septembrie 2014, Constanța. Comunicări prezentate

1. Andreea FAZACAȘ, Paul STERIAN,
"Efecte neliniare în microrezonatori optici în inel"

D. Lucrări științifice prezentate la Conferințe Internaționale

1. C. Dumitru, V. F. Muscurel, L. Fara, P. Sterian, "On the performance analysis of advanced solar cells through reliable parameter extraction", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
2. A. Diaconu, L. Fara, P. Sterian, S. Fara, "Forecasting model for a PV park in Romania", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
3. O. Danila, P. Sterian, "Theoretical investigations on entanglement in laser devices", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
4. A. Badea, F. Dragan, L. Fara, P. Sterian, "On the optimization of photonic-crystal fibers for mid- and long-wave infrared spectroscopy", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
5. A. Rosu, P. Sterian, "Controlled movement of a diamagnetic levitated pyrolytic graphite", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
6. F. Dragan, A. Badea, L. Fara, P. Sterian, "Applications database for novel laser processing of polymers and biomaterials", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
7. V. F. Muscurel, C. Dumitru, L. Fara, P. Sterian, "Analysis of data processing techniques for quantified thermograms by signal to noise ratio", The fourth edition of the International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014, Bucharest, Romania.
8. V. F. Muscurel, C. Dumitru, L. Fara, P. Sterian, "Analysis and computerized data processing for thermogram quality improvement", The fourth edition of the

International Colloquium 'Physics of Materials' - PM-4, November 13-14, 2014,
Bucharest, Romania.

E. Citari ISI in anul 2014

1. Lucrarea citata

[The mass-hierarchy and CP-violation discovery reach of the LBNO long-baseline neutrino experiment](#)

By: Agarwalla, S. K.; Agostino, L.; Aittola, MP. Sterian,^{al} B. Still,^g S. Stoica,^{al} .; et al..... Group

Author(s): LAGUNA-LBNO Collaboration

JOURNAL OF HIGH ENERGY PHYSICS Issue: 5, Article Number: 094 Published: MAY 21 2014

Lucrari care citeaza

1. [Probing neutrino oscillation parameters using high power superbeam from ESS](#)

By: Agarwalla, Sanjib Kumar; Choubey, Sandhya; Prakash, Suprabh

JOURNAL OF HIGH ENERGY PHYSICS Issue: 12 Article Number: 020 Published: DEC 3 2014

2. [A steerable UV laser system for the calibration of liquid argon time projection chambers](#)

By: Ereditato, A.; Kreslo, I.; Luthi, M.; et al.

JOURNAL OF INSTRUMENTATION Volume: 9 Article Number: T11007 Published: NOV 2014

3. [Neutrino magnetic moment, CP violation, and flavor oscillations in matter](#)

By: Pehlivan, Y.; Balantekin, A. B.; Kajino, Toshitaka

PHYSICAL REVIEW D Volume: 90 Issue: 6 Article Number: 065011 Published: SEP 9 2014

4. [Testing of high voltage surge protection devices for use in liquid argon TPC detectors](#)

By: Asaadi, J.; Conrad, J. M.; Gollapinni, S.; et al.

JOURNAL OF INSTRUMENTATION Volume: 9 Article Number: P09002 Published: SEP 2014

5. [Neutrino emission characteristics and detection opportunities based on three-dimensional supernova simulations](#)

By: Tamborra, Irene; Raffelt, Georg; Hanke, Florian; et al.

PHYSICAL REVIEW D Volume: 90 Issue: 4 Article Number: 045032 Published: AUG 25 2014

6. [Expected performance of an ideal liquid argon neutrino detector with enhanced sensitivity to scintillation light](#)

By: Sorel, M.

JOURNAL OF INSTRUMENTATION Volume: 9 Article Number: P10002 Published: OCT 2014

[Full Text](#)

2. Lucrarea citată

[Analysis of even and odd modes of a two-dimensional photonic crystal at Si/SiO₂/Cu interface](#)

By: Popescu, D. G.; Sterian, P.

JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Volume: 15 Issue: 7-8

Pages: 610-614 Published: JUL-AUG 2013

Lucrări care citează

[Solitons in optical metamaterials by F-expansion scheme](#)

By: Ebadi, G.; Mojaver, A.; Vega-Guzman, J.; et al.

OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS Volume: 8

Issue: 9-10 Pages: 828-832 Published: SEP-OCT 2014

3. Lucrarea citată

[Mathematical Models of Dissipative Systems in Quantum Engineering](#)

By: Sterian, Andreea; Sterian, Paul

MATHEMATICAL PROBLEMS IN ENGINEERING Article Number: 347674 Published: 2012

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[Irradiation influence on a new hybrid hemp bio-composite](#)

By: Scutaru, M. L.; Baba, M.; Baritz, M. I.

JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Volume: 16 Issue: 7-8

Pages: 887-891 Published: JUL-AUG 2014

4. Lucrarea citată

D. A. Anghel, A. R. Sterian, and P. E. Sterian, "[Modeling quantum well lasers,](#)" *Mathematical Problems in Engineering*, vol. 2012, Article ID736529, 11 pages, 2012.

Lucrări care citează

ShifengWen,¹ Xiaohu Zeng,¹ and Gongnan Xie,¹"Investigation on the Interface Characteristics of the Thermal Barrier Coating System through Flat Cylindrical Indenters
Hindawi Publishing Corporation, *Advances in Mechanical Engineering*
Volume 2014, Article ID 654096, 10 pages,<http://dx.doi.org/10.1155/2014/654096>

5. Lucrarea citată

1. Title: [Residual stress in thin films PECVD depositions: a review](#)

Author(s): Iliescu, C.; Avram, M.; Chen, B.;... Sterian, P. et al.

Source: JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Volume: 13 Issue: 2-4 Pages: 387-394 Published: MAR 2011

Lucrări care citează

1. AVRAM, A., AC BUNEA, C. OBREJA, M. AVRAM, B. BITA, C. PARVULESCU, M. POPESCU, and D. NECULOIU. "FABRICATION OF THIN DIELECTRIC MEMBRANES FOR MICROWAVE APPLICATIONS." *Digest Journal of Nanomaterials & Biostructures (DJNB)* 9, no. 2 (2014).

6. Lucrarea citată

[Mathematical Models of Dissipative Systems in Quantum Engineering](#)

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Lucrari care citează

M. L. SCUTARU, **Toward the use of irradiation for the composite materials properties improvement,** JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 16, No. 9-10, September - October 2014, p. 1165 - 1169

7. Lucrarea citată

[Beam propagation and non-linear effects in photonic crystal optoelectronic devices](#)

By: Stancu, R. -F.; Sterian, P.

JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Volume: 14 Issue: 3-4

Pages: 371-375 Published: MAR-APR 2012

Lucrări care citează

[Solitons in optical metamaterials by F-expansion scheme](#)

By: Ebadi, G.; Mojaver, A.; Vega-Guzman, J.; et al.

OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS Volume: 8

Issue: 9-10 Pages: 828-832 Published: SEP-OCT 2014

8. Lucrarea citată

[Aluminophosphate-doped glasses with rare-earth ions](#)

By: Rogojan, R.; Sterian, PE; Elisa, M.,

PROCEEDINGS OF THE SOCIETY OF PHOTO-OPTICAL INSTRUMENTATION ENGINEERS (SPIE) Volume: 4068 Pages: 90-96 Published: 2000

Lucrări care citează

[Eu3+ luminescence in aluminophosphate glasses](#)

By: Nico, C.; Fernandes, R.; Graca, M. P. F.; et al.

JOURNAL OF LUMINESCENCE Volume: 145 Pages: 582-587 Published: JAN 2014

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1. **The mass-hierarchy and CP-violation discovery reach of the LBNO long-baseline neutrino experiment**
[LAGUNA-LBNO](#) Collaboration ([S.K. Agarwalla](#) ([Bhubaneswar, Inst. Phys.](#)) *et al.* :S. K.; Agostino, L.; Aittola, M.; Alekou, A.; Andrieu, B.; Angus, D.; Antoniou, F.; Ariga, A.; Ariga, T.; Asfandiyarov,; [Sterian, P.](#); [Still, B.](#); [Suhonen](#)...)). Dec 23, 2013. 38 pp.
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1. **On the complementarity of Hyper-K and LBNF**
[J. Cao](#), [A. de Gouvêa](#), [D. Duchesneau](#), [R. Funchal](#), [S. Geer](#), [S.B. Kim](#), [T. Kobayashi](#), [K. Long](#), [M. Maltoni](#), [M. Mezzetto](#) *et al.*. Jan 16, 2015.
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2. **Lepton Flavor Mixing and CP Symmetry**
[Peng Chen](#), [Cai-Chang Li](#), [Gui-Jun Ding](#). Dec 29, 2014. 24 pp.
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3. **A novel technique for the measurement of the electron neutrino cross section**

[A. Longhin](#), [L. Ludovici](#), [F. Terranova](#). Dec 18, 2014. 22 pp.

e-Print: [arXiv:1412.5987 \[hep-ex\]](#) | [PDF](#)

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4. **The LAGUNA/LBNO potential for Long Baseline neutrino physics**

[the LAGUNA-LBNO Consortium](#) Collaboration ([Luca Agostino](#) for the collaboration). 2014.

Published in *J.Phys.Conf.Ser.* **566** (2014) **1**, 012002

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5. **Incoherent Pion Production in Neutrino - Deuteron Reactions**

[Jia-Jun Wu](#) ([Argonne, PHY](#)), [T. Sato](#) ([Osaka U.](#)), [T. -S. H. Lee](#) ([Argonne, PHY](#)). Dec 7, 2014. 21 pp.

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6. **The LBNO long-baseline oscillation sensitivities with two conventional neutrino beams at different baselines**

[LAGUNA-LBNO](#) Collaboration ([S.K. Agarwalla](#) ([Bhubaneswar, Inst. Phys.](#)) *et al.*). Dec 2, 2014. 21 pp.

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7. **Optimised sensitivity to leptonic CP violation from spectral information: the LBNO case at 2300 km baseline**

[LAGUNA-LBNO](#) Collaboration ([S.K. Agarwalla](#) ([Bhubaneswar, Inst. Phys.](#)) *et al.*). Dec 1, 2014. 25 pp.

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8. **Determination of the θ_{23} octant in LBNO**

[C.R. Das](#) ([Jyväskylä U.](#) & [Lisbon, CFTP](#) & [Lisbon, IST](#) & [Ahmedabad, Phys. Res. Lab](#)), [Jukka Maalampi](#) ([Jyväskylä U.](#)), [Joao Pulido](#) ([Lisbon, CFTP](#) & [Lisbon, IST](#)), [Sampsa Vihonen](#) ([Jyväskylä U.](#)). Nov 11, 2014. 12 pp.

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9. **Optimization of neutrino fluxes for future long baseline neutrino oscillation experiments**

[M. Calviani](#) ([CERN](#)), [S. Di Luise](#) ([Zurich, ETH](#)), [V. Galymov](#) ([Lyon, IPN](#)), [P. Velten](#) ([CERN](#)). Nov 10, 2014. 3 pp.

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10. **Determining the Dirac CP Violation Phase in the Neutrino Mixing Matrix from Sum Rules**

[I. Girardi](#) ([INFN, Trieste](#) & [SISSA, Trieste](#)), [S.T. Petcov](#) ([INFN, Trieste](#) & [SISSA, Trieste](#) & [Tokyo U., IPMU](#)), [A.V. Titov](#) ([INFN, Trieste](#) & [SISSA, Trieste](#)). Oct 29, 2014. 26 pp.

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11. **Testing solar lepton mixing sum rules in neutrino oscillation experiments**
[Peter Ballett](#) (Durham U., IPPP & [Durham U.](#)), [Stephen F. King](#) (Southampton U.), [Christoph Luhn](#) (Siegen U.), [Silvia Pascoli](#) (IPPP, Durham & [Durham U.](#)), [Michael A. Schmidt](#) (Sydney U.). Oct 28, 2014. 26 pp.
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12. **Probing CP violation at LBNE with reactor experiments**
[Debajyoti Dutta](#), [kalpana Bora](#) ([Gauhati U.](#)). Sep 29, 2014. 13 pp.
Published in **Mod.Phys.Lett.A, 2015**
e-Print: [arXiv:1409.8248 \[hep-ph\]](#) | [PDF](#)
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13. **LBNO-DEMO: Large-scale neutrino detector demonstrators for phased performance assessment in view of a long-baseline oscillation experiment**
[L. Agostino](#), [B. Andrieu](#), [R. Asfandiyarov](#), [D. Autiero](#), [O. Bésida](#), [F. Bay](#), [R. Bayes](#), [A.M. Blebea-Apostu](#), [A. Blondel](#), [M. Bogomilov](#) *et al.*. Sep 14, 2014. 217 pp.
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14. **High-Power Proton-Synchrotron Collimation Studies**
[Androula Alekou](#), [Yannis Papaphilippou](#) (CERN), [Daniel Spitzbart](#) (TU Vienna). Jul 2014. 3 pp.
Conference: [C14-06-16](#), p.MOPRI109 [Proceedings](#)
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15. **Deviation from Bimaximal Mixing and Leptonic CP Phases in S_4 Family Symmetry and Generalized CP**
[Cai-Chang Li](#), [Gui-Jun Ding](#) (Hefei, CUST). Aug 4, 2014. 50 pp.
e-Print: [arXiv:1408.0785 \[hep-ph\]](#) | [PDF](#)
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16. **Testable constraint on near-tribimaximal neutrino mixing**
[Biswajoy Brahmachari](#) ([Vidyasagar Evening Coll.](#)), [Probir Roy](#) ([Saha Inst.](#) & [CAPSS, Kolkata](#)). Jul 20, 2014. 12 pp.
e-Print: [arXiv:1407.5293 \[hep-ph\]](#) | [PDF](#)
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17. **A steerable UV laser system for the calibration of liquid argon time projection chambers**
[A. Ereditato](#), [I. Kreslo](#), [M. Lüthi](#), [C. Rudolf von Rohr](#), [M. Schenk](#), [Thomas Strauss](#), [M. Weber](#), [M. Zeller](#) (Bern U., LHEP). Jun 24, 2014. 10 pp.
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[Irene Tamborra](#) ([U. Amsterdam, GRAPPA](#)), [Georg Raffelt](#) ([Munich, Max Planck Inst.](#)), [Florian Hanke](#), [Hans-Thomas Janka](#) ([Garching, Max Planck Inst.](#)), [Bernhard Mueller](#) ([Monash U.](#)), May 30, 2014. 18 pp.
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[R. Krishnan](#) ([Warwick U.](#)). Feb 4, 2014. 28 pp.

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E. Granturi/Proiecte de cercetare

-1 proiect POSDRU, UPB.

-Evaluator invitat Grant cercetare Polonia:

National Science Centre (Narodowe Centrum Nauki - NCN; <http://www.ncn.gov.pl>).

2. Cercetator științific 1, dr. ing. Cătălin Spulber, membru fondator/ titular al Academiei Oamenilor de Știință din România,

A. Articole publicate în reviste cotate ISI, în care este menționată afilierea la AOSR

1. Cătălin Spulber: "A Fast Estimation of the EO/IR System Performances Using the Image Simulation in a Turbulent Atmosphere" (International Conference on Biomechanics, Neurorehabilitation, Mechanical Engineering, Manufacturing Systems, Robotics and Aerospace: OPTIROB 2014, June 26-29, 2014, Mangalia Romania), **Applied Mechanics and Materials** Vol. 555 (2014) pp 737-74, Trans Tech Publications, Switzerland, doi:10.4028/www.scientific.net/AMM.555.737, ISSN 1662-7482

NOTA: **Applied Mechanics and Materials Journal (ISSN: 1660-9336)** is Indexed by Elsevier: SCOPUS www.scopus.com and Ei Compendex (CPX) www.ei.org/. Cambridge Scientific Abstracts (CSA) www.csa.com, Chemical Abstracts (CA) www.cas.org, Google and Google Scholar google.com, **ISI** (ISTP, CPCI, Web of Science) www.isinet.com, Institution of Electrical Engineers (IEE) www.iee.org, etc.

B. Membru în comitete științifice la conferințe internaționale cotate ISI, în care este afiliat la AOSR

1. International Conference on Aerospace, Robotics, Mechanical Engineering, Manufacturing Systems, Biomechanics, Neurorehabilitation and Human motricities "Smart systems in all fields of the life" ICMERA 2014, 24-26 October 2014, Bucharest, Romania, **Co-chairman**
2. International Conference on Biomechanics, Neurorehabilitation, Mechanical Engineering, Manufacturing Systems, Robotics and Aerospace: OPTIROB 2014, June 26-29, 2014, Mangalia Romania

C. Reviewer la reviste internațional cotate ISI și alte baze de date, în care este afiliat la AOSR

1. Applied Mechanics and Materials, Trans Tech Publications, Switzerland

D. Brevete naționale

Spulber Catalin s.a: Brevet de invenție OSIM nr.123587/2014: "Echipament pentru creșterea eficienței de evaluare a diagnozei și protocoalele terapeutice instituite în traumele osoase și musculare"

4. Prof.univ. dr. ing. Brezeanu Gheorghe,

membru titular al Academiei Oamenilor de Știință din România

A. CONTRACTE DE CERCETARE

1. *Senzor inteligent de temperaturi ridicate cu diode pe carbura de siliciu (SiC) pentru aplicații industriale in medii ostile -SIC SET*, Contract nr.**21** , 2012-2015 Programul PARTENERIATE IN DOMENIILE PRIORITARE ,**PNC DI 2** ,
Coordonator UPB.
2. *Detector de gaze inflamabile și toxice bazat pe matrice de senzori MOS pe carbura de siliciu-SICGAS*, Contract nr.**204** , 2012-2015 Programul PARTENERIATE IN DOMENIILE PRIORITARE ,**PNC DI 2**, **partener** (coordonator ICPE).
3. *Sistem multiparametric pentru monitorizarea fermentării vinului*, Contract nr.**146** , 2014-2016 Programul PARTENERIATE IN DOMENIILE PRIORITARE ,**PNC DI 2**, **partener** (coordonator INSTITUTUL NAȚIONAL DE CERCETARE DEZVOLTARE PENTRU ȘTIINTE BIOLOGICE).

B. ARTICOLE-Reviste ISI

1. V. Anghel , C. Bartholomeusz, A. Vasilica,G.Pristavu, **G.Brezeanu**, *Variable Off Time Control Loop For Current–Mode Floating Buck Converters In LED Driving Applications*, **IEEE Journal of Solid State Circuits**,vol.49,No.7,pp.1571-1579 (2014).
2. **G. Brezeanu**, F. Drăghici, M. Badila, F. Craciunoiu, G. Pristavu, R. Pascu, F. Bernea, *Two packaging solutions for high temperature SiC diode sensors*, **Materials Science Forum** vols.778-780 , pp. 1063-1066 (2014).
3. B. Ofrim, **G. Brezeanu**, F. Drăghici, I. Rusu, "*High Temperature Hydrogen Sensor based on Silicon Carbide (SiC) MOS Capacitor Structure*", **Materials Science Forum** vols.778-780 , pp. 1054-1057 (2014).

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1. R. Pascu, G. Pristavu, **G. Brezeanu**, F. Drăghici, M. Badila, F. Craciunoiu, "*Electrical Characterization of Ni-silicide Schottky Contacts on SiC for High Performance Temperature Sensor*", **10th European Conference on Silicon Carbide and Related Materials (ECSCRM)**, Grenoble France,21.-25 Sept.2014, pp. 87.
2. R. Pascu, G. Pristavu, M. Badila, **G. Brezeanu**, F. Drăghici, F. Craciunoiu, "*Temperature Behavior of 4H-SiC MOS Capacitor used as a Gas Sensor*", in Proc. of the **37th International Semiconductor Conference**, 13-15 Oct. 2014, Sinaia, Romania, pp. 185-188.
3. E. Ceuca, **G. Brezeanu**, "*Practical Behavior of Charging Applications and Command Strategy in Wireless Power Supplies*", in Proc. of the **37th International Semiconductor Conference**, 13-15 Oct. 2014, Sinaia, Romania, pp. 189-192.
4. L. Teodorescu, A. S. Gheorghe, F. Drăghici, **G. Brezeanu**, I. Rusu, "*Power Supply architecture for High Temperature Chuck Systems*", in Proc. of the

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 - A-G.Bajenaru, C. Boianceanu, **G. Brezeanu**, "Electro-thermal characterization of multi-emitter power NPN transistors," **The 14th International Conference on Optimization of Electrical and Electronic Equipment (OPTIM)** 22-24 May 2014, pp.506-511.

D. COMUNICARI LA SESIUNI STIINTIFICE (IEEE Proceedings)

- G. Pristavu, R. Pascu, F. Drăghici, M. Badila, **G. Brezeanu**, *High Temperature SiC Sensors*, in Proc. of the **20th International Symposium for Design and Technology in Electronic Packaging**, 23-26 Oct. 2014, Bucharest, Romania, pp. 329-332.
- A-G.Bajenaru, C. Boianceanu, F. Ballarin, **G. Brezeanu**, "Extensive Electro-Thermal Simulation Methodology for Automotive High Power Circuits," **10th Conference on Ph.D. Research in Microelectronics and Electronics (PRIME)**, 30 Jun.-03 Jul. 2014.

5. Cercetator stiintific1, dr. ing. Cobianu Cornel, membru titular al Academiei Oamenilor de Stiinta din Romania

E. – *Contracte de cercetare*

2	EU-FP-7 Smart Silicon on Insulator Sensing Systems Operating at High Temperatures (SOI-HITS)	Cornel Cobianu is team member	Contract Nr.288481, 2011-2014, Collaborative project Coordinator : Prof. Florin Udrea, University of Cambridge
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B. *Patente acordate in US*

1	Carbon dioxide sensor	US 8 826 724 B2 Sept 9, 2014	Bogdan Serban, Mihai Mihaila, Cornel Cobianu, Viorel Dumitru, Octavian Buiu
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C. *Patente publicate in EU si US*

1.	On chip resonant gyro and pressure sensor	EP 2 693 182 A1, 05.02.2014	Cornel Cobianu
2	On-chip resonant acceleration and pressure sensor	EP 2 693 183 A1, 05.02.2014	Cornel Cobianu
3	Single element pellistor insensitive to internal and external interferences	EP 2 806 266 A1 26.11. 2014	Cornel Cobianu, Bogdan Catalin Serban
4	Chlorophyll-based sensors for	EP 2 806268 A1,	Bogdan-Catalin Serban,

	mineral and organic acids	26.11.2014	Mihai Brezeanu, Cornel Cobianu, Cristian Diaconu
5	Long-life, lead-free, oxygen galvanic sensor	EP 2 813 843 A1, 17.12.2014	Cornel Cobianu, Bogdan Catalin Serban, Viorel Avramescu, Bryan Hobbs, Keith Pratt, Martin Willett
6	Oxygen galvanic sensor based on noble metals	EP 2 813 844 A1 17.12.2014	Cornel Cobianu, Bogdan-Catalin Serban, Viorel Avramescu, Bryan Hobbs, Keith Pratt, Martin Willett
7	Lead-free electrochemical galvanic oxygen sensor	US 2014/0231253 A1, August 21, 2014 October 6, 2011	Cornel Cobianu,

D. –Lucrări publicate or în curs de publicare în Anale AOȘR-STI

1	Hydrogen sulfide sensing review	Bogdan Serban, Cornel Cobianu, Mihai Brezeanu, Viorel Dumitru, Octavian Buiu, Alisa Stratulat and Ștefan Costea	Annals of Academy of Romanian Scientists, vol. 7, 2014, Number 1, pp 55-67
2	Quantum dot solar cell. An HSAB perspective	Bogdan Șerban, Cornel Cobianu, Mihai Brezeanu, Octavian Buiu.	Annals of Academy of Romanian Scientists, vol.6, Number 1/2013 (lucrare scrisa in 2014) , pp 7-18.
3	Oxygen sensing: A review. Part 1: Materials and Methods for optical and galvanic lead-free oxygen detection	Bogdan Șerban, Cornel Cobianu , Octavian Buiu	Annals of Academy of Romanian Scientists, vol.6, Number 2/2013 (lucrare scrisa in 2014), pp. 43-54.
4	Oxygen sensing: A review. Part2. Solid State Technologies	Cornel Cobianu, Bogdan Șerban, Mihai Brezeanu, Viorel Dumitru, Cazimir Bostan, Octavian Buiu.	To be published in Annals of Academy of Romanian Scientists, vol.6, Number 2/2014.

E.-Lucrări prezentate în Conferințe Internaționale

1.	Materials selection for gas sensing. An HSAB perspective	Bogdan Șerban, Mihai Brezeanu, Cornel Cobianu, Ștefan Costea, Octavian Buiu, Alisa Stratulat	Invited paper at 2014 International Semiconductor Conference (CAS), October 13-15, 2014, Sinaia, Proceedings, pp. 21-30.
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2	High efficiency coupling devices for guided wave radar based level sensors.	Cornel Cobianu, Ion Georgescu, Stuart Heath, Michael Hughes, Frank Haran	Oral presentation at at 2014 International Semiconductor Conference (CAS), October 13-15, 2014, Sinaia, Proceedings, pp. 163-167
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F. Referent :

Journal of Micromechanics and Microengineering

6. Cercetător științific¹, dr.ing. Andrei Neculai,
membru corespondent al Academiei Oamenilor de Știință din
România

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1. N. Andrei, *An accelerated subspace minimization three-term conjugate gradient algorithm for unconstrained optimization*. Numerical Algorithms, 2014, vol. 65, pp.859-874.

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1. N. Andrei, *Critica Rațiunii Algoritmilor de Optimizare cu Restricții*. Manuscris deus la Editura Academiei Române. 1150 pagini cu CD.

Coordonator de proiecte din fonduri Europene:

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POS CCE: Apel nr.5/ Axa prioritară 3/ Operațiunea 3.2.1

Durata Proiectului: 2013-2015

Nr. contract de finanțare: 1194/321 / 06.12.2013

SMIS: 48594

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17.280.000 Euro (1Euro = 4.5 lei)

Valoare eligibilă nerambursabilă din FEDR: 63.021.369,60 lei.

Valoare eligibilă nerambursabilă din Bugetul Național:13.183.430,40 lei.

Co-finanțare eligibilă a Beneficiarului: 1.555.200,00 lei.

8. Prof.univ. dr. ing. Ștefan Trăușan-Matu,
membru corespondent al Academiei Oamenilor de Știință din
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1. Ștefan Trăușan-Matu, Kristy Elizabeth Boyer, Martha Crosby, Kitty Panourgia (Eds.), *Intelligent Tutoring Systems, 12th International Conference*, Honolulu, Hawaii, Lecture Notes in Computer Science 8474, Springer, New York, 2014

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1. Dascălu, M., Dessus, P., Bianco, M., Trausan-Matu, S., & Nardy, A. (2014). Mining Texts, Learners Productions and Strategies with ReaderBench. In A. Peña-Ayala (Ed.), *Educational Data Mining: Applications and Trends*. Switzerland: *Studies in Computational Intelligence*, vol. 524, Springer, 345-377, 2014
2. Ștefan Trăușan-Matu, Persoana, comunitate și comuniune în spațiul real și virtual, în Adrian Lemeni, Adrian Sorin Mihalache (coord.), „*Realitatea și semnificația spațiului - abordare teologică, filosofică și științifică*”, Editura Basilica, 2014, pp. 217-227

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1. Ștefan Trăușan-Matu, Mihai Dascălu, Traian Rebedea, PolyCAFe—automatic support for the polyphonic analysis of CSCL chats, *International Journal of Computer-Supported Collaborative Learning*, 06/2014; Volume 9(2), Springer, pp. 127-156, 2014 (ISI Journal, impact factor 1.72)
2. Nistor, N., Trăușan-Matu, Ș., Dascălu, M., Duttweiler, H., Chiru, C., Baltas, B., & Smeaton, G. (2014). Finding student-centered open learning environments on the internet: Automated dialogue assessment in academic virtual communities of practice. *Computers in Human Behavior* (ISI Journal, impact factor 2.07)
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4. Cercel, Dumitru-Clementin and Trăușan Matu, Ștefan, User-Level Opinion Propagation Analysis in Discussion Forum Threads. In 16th International Conference on Artificial Intelligence: Methodology, Systems, Applications (AIMSA 2014), Lecture Notes in Computer Science, vol. 8722, ISBN 978-3-319-10553-6, pp. 25--36, Springer, 2014
5. Dascălu, M., Stavarache, L. L., Trăușan-Matu, S., Dessus, P., & Bianco, M. (2014, 10-12 Nov.). Reflecting comprehension through French textual complexity factors. *Proceedings of the 26th IEEE Int. Conf. on Tools with Artificial Intelligence (ICTAI 2014)*. Limassol, IEEE, pp. 615–619).
6. Dascălu, M., Dessus, P., Bianco, M. & Trăușan-Matu, S. (2014). Are automatically identified reading strategies reliable predictors of comprehension? In S. Trausan-Matu, E. Boyer, M. Crosby, & K. Panourgia (Eds.), *12th Int. Conf. on Intelligent Tutoring Systems (ITS 2014)* (pp. 456–465). New York: Springer, LNCS 8474. Honolulu (HI), USA.
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8. Paraschiv, Ionut Cristian; Dascălu, Mihai; Trăușan-Matu, Ștefan; Voice control framework for form based applications; 16th International Conferinta on Artificial

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3. Iulia Badea, Ștefan Trăușan-Matu (2014), Analiza chaturilor CSCL folosind pachetul R, *Conferința Națională de Interacțiune Om-Calculator (RoCHI 2014)*, pp. 45-50

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1. Alasfour A., Trausan-Matu, S. (2014), Automatic Three Dimension (3-D) Word Alignment Approach, *Annals of the Academy of Romanian Scientists, Series on Science and Technology of Information*, Volume 7, Number 1/2014, pp. 35-54
2. Stefan Trausan-Matu (2014), Polyphonic Design, Conduct, Experience, and Evaluation in CSCL Chats, accepted at *Annals of the Academy of Romanian Scientists, Series on Science and Technology of Information*, Volume 7, Number 2/2014
- 3.

Organizare conferințe internaționale

1. Program chair: Intelligent Tutoring Systems, SUA
2. Chair: K-Teams Third International Workshop, 26-27 August 2013, la 2nd IEEE International Conference on Systems and Computer Science (ICSCS), Villeneuve d'Ascq, France

Membru în comitete științifice la conferințe internaționale

CRIWG 2014, EC-TEL 2014, EGC 2014, ICHL 2014, ICTAI 2014, ICWL 2014, LAK 2014, SYNASC 2014, ICALT 2014, ARTEL 2014

Reviewer la reviste internaționale cotate ISI

- International Journal of Computer Supported Collaborative Learning, Springer
- Information Sciences, Elsevier

9. PROF. univ. emerit dr. DAN-ALEXANDRU IORDACHE, membru de onoare al Academiei Oamenilor de Știință din România

A. Lucrări științifice publicate

1. T. A. Anderson, **D. A. Iordache** "Complexity Features in the Computer-Aided Piano Tuning", in the "Proceedings of the 24th SISOM 2013 Annual Symposium of the Institute of Solid Mechanics and Session of the Commission of Acoustics", Romanian Academy, Mediamira, May 2014.
2. I. Apostol, **D. A. Iordache** "The Analysis of some Accommodation and Dis-Accommodation (Hysteresis) Processes in some Magnetic Materials and Sandstones from the perspective of Phenomenological Universality", *Sci. Bull. "Politehnica" Univ. Bucharest, Series A*, **76(3)** 253-264(2014).

3. **D. A. Iordache**, P. Sterian, I. Tunaru "Study of the Numerical Phenomena met in the Evaluation of the main physical parameters of CCDs by means of the classical Gradient Method", Sci. Bull. "Politehnica" Univ. Bucharest, Series A, **76(4)** 255-270(2014).

B. Lucrări didactice publicate

1. **D. A. Iordache** "Elemente de Fizică Cuantică (E). Aproximația cuasiclasică (Brillouin-Kramers-Wentzel)", fascicula 86 a seriei "De la fizica elementară spre fizica modernă", Evrika **24(281)** pag. 7-15, ianuarie 2014.
2. **D. A. Iordache** "Elemente de Fizică Cuantică (F). Teoria cuantică a spectrelor atomilor alcalinoizi", fascicula 87 a seriei "De la fizica elementară spre fizica modernă", Evrika **24(284)** pag. 7-15, aprilie 2014.
3. **D. A. Iordache** "Elemente de Fizică Cuantică (G). Experimente permițând evaluarea momentelor proprii (de spin) magnetic, respectiv cinetic, ale electronului", fascicula 88 a seriei "De la fizica elementară spre fizica modernă", Evrika **24(285-286)** pag. 7-14, mai-iunie 2014.
4. **D. A. Iordache** "Elemente de Fizică Cuantică (H). Studiul structurii solidelor prin metoda difracției", fascicula 92 a seriei "De la fizica elementară spre fizica modernă", Evrika **24(287-288)** pag. 12-19, iulie-august 2014.
5. **D. A. Iordache** "Elemente de Fizică Cuantică (H). Laseri. Energia de schimb", fascicula 90 a seriei "De la fizica elementară spre fizica modernă", Evrika **24(290)** pag. 9-18, octombrie 2014.
6. **D. A. Iordache** "Transformarea învățământului liceal prin sprijinirea calificărilor științifice, tehnologice, ingineresti și de matematică", fascicula 2 a seriei "Politica învățământului științific românesc în era globalizării", Evrika **24(291)** pag. 7-8, noiembrie 2014.
7. **D. A. Iordache** "Noțiuni privind tabelul de periodicitate al elementelor", fascicula 91 a seriei "Elemente de fizică cuantică", Evrika **24(292)**, pag. 13-24, decembrie 2014.

C. Monografiile didactice în curs de definitivare

1. **D. A. Iordache** "Let's learn Exact Sciences by Problems Solving", 3 volume: a) învățământ pre-universitar, b) învățământ universitar, c) învățământ post-universitar (cursuri Masterat, respectiv doctorat), versiuni în limbile: (i) română, respectiv: (ii) engleză, cca. 1200 pagini, prin includerea unor: d) elemente privind "punțile de legătură dintre științe: (i) Probabilități și Teoria Informației, (ii) Statistici matematice, (iii) Prelucrările de date, (iv) unele limbaje de programare a calculatoarelor, (v) Similitudinea fizică, (vi) Simetrii fizice, (vii) Teoria gravitației, (viii) unele aplicații ale Fizicii cuantice, (ix) unele legături între chimie și biologie.

D. Lucrări științifice în curs de definitivare

1. **D. A. Iordache** "From the quantum entanglement to the semi-quantum and to the classical entanglement".
2. **D. A. Iordache** "Incompleteness, entanglement and the basic deductive and inductive models, respectively, of the Universe evolution".
3. **D. A. Iordache** "Entanglement and Complexity"
4. T. A. Anderson, **D. A. Iordache** "Study of the frequencies spectrum of a tuned 5'3" Kohler and Campbell Grand Piano", intended to the 26th SISOM 2015 Annual Symposium of the Institute of Solid Mechanics and Session of the Commission of Acoustics, Romanian Academy, May 2015.

E. Distincții primite în anul 2014

1. Diploma de Excelență acordată de Academia Oamenilor de Știință din România, cu ocazia împlinirii a 75 de ani, pentru bogata activitate științifică și academică, Septembrie 2014.

10. Cercetator științific1, dr. ing. Ciprian Iliescu
membru de onoare al Academiei Oamenilor de Știință din
România

Articole (ISI)

1. C. Iliescu,* C. Mărculescu, S. Venkataraman, B. Languille, H. Yu and G. Tresset “On-chip controlled surfactant–DNA coil–globule transition by rapid solvent exchange using hydrodynamic flow focusing,” *Langmuir*, **vol. 30, issue 44**, November 2014, pp. 13125-13136. Factor de impact: 4.384
2. J.S. Kochhar, P. Anbalagan, S. B. Shelar, J.K. Neo, C. Iliescu, L. Kang “Direct microneedle array fabrication of a photomask to deliver collagen through skin,” *Pharmaceutical Research*, **vol. 31, no. 7**, July 2014, pp. 1724-1734. Factor de impact: 3.952
3. D. P. Poenar, C. Iliescu,* J. Boulaire, H. Yu, “Label-free virus identification and characterization using electrochemical impedance spectroscopy,” *Electrophoresis*, **vol. 35, issue 2-3**, February 2014, pp. 433-440. Factor de impact: 3.161

Articol necitat ISI:

4. F.S. Iliescu, Doina Dumitrescu-Ionescu, M. Petrescu, C. Iliescu,* “A review on transdermal drug delivery using microneedles: current research and perspective,” *Annals of Academy of Romanian Scientists Series on Science and Technology of Information*, **vol. 7, no. 1**, July 2014, pp. 7-34.

Conferințe:

1. C. Iliescu, C. Maraculescu, D. Resnik, and D. Vrtacnik, “Characterization of TEOS thin film deposition in PECVD reactors,” Proc. of 50th Int. Conf. on Microelectronics, Devices and Materials (MIDEM’14), Slovenia, 8-10 Oct. 2014, Ljubljana, Slovenia, pp. 199-202.

ALTE ACTIVITĂȚI:

• **Membru colectiv editorial:**

- Annals of the Academy of Romanian Scientists, Series on Science and Technology of Information
- Informacije MIDEM- Journal of Microelectronics, Electronic Components and Materials –Slovenia
- Journal of Fluids /Hindawi
- Transactions on Fluid Mechanics (Associate Editor)/WSEAS

• **Cenzor pentru 20 articole / 8 jurnale**

• **Cenzor (evaluare grant): QNRS (Qatar National Research Fund)**

• **Evaluator extern al tezei de doctorat:**

- RuchiTiwari- Indian Institute of Technology, Delhi, India- 2014.
- **Citari (total):**
 - ISI Thomson: 1120citari/100 articole, H-index:23
 - SCOPUS: 1245 citari/104 articole, H-index: 23
 - Google Scholar: 1659citări/131articole, H-index: 25

VI. Concluzii

1. Activitatea Secției STI s-a desfășurat conform Planului de activitate.
2. Au fost îndeplinite obiectivele propuse pentru anul 2014.
3. În Secția STI un membru corespondent al AOȘR a devenit titular.
4. Din rapoartele individuale de activitate rezultă contribuția importantă a membrilor Secției STI la creșterea prestigiului AOȘR în țară și în străinătate.

*Prof.univ.dr.ing.Paul Sterian,
Președintele Secției STI
Cosilier, ing. Mihai Căruțașu,
/Secretarul Secției STI*

27. 01. 2015