ISSN 2312-4997

Automatics & Software Enginery

2014 N 1(7)

© Automatics & Software Enginery. 2014, № 1 (7)

UDK 681.2; 681.3; 681.5; 681.7

Automatics & Software Enginery. № 2(8), 2014
ISSN 2312-4997.
The Journal “Automatics & Software Enginery” has been found in June, 2012.

Founder of the Journal:

Novosibirsk Institute of Program Systems
Web-site of the organization: www.nips.ru

Registration certificate ПИ № ФС77-55079

Mailing Address of the editorship:

630090, Russia, Novosibirsk, Str. Prospect Akademika Lavrentievs, h. 6/1,
Novosibirsk Institute of Program Systems
To First Vice-Director

E-mail: oao_nips@bk.ru
Web: www.jurnal.nips.ru
Additional Web (reserve archives): http://ait.cs.nstu.ru/content/ape

Journal has been signed to publication on the 14 May 2014.

Content

Self-Organizing System of Traffic Control of Computer Net: Remote Net Access

Evgeny Basinya, Galina Frantsuzova, Andrey Gunko

Abstract

The paper discusses successful realization of algorithm of remote net access to self-organizing system of traffic control for computing net functioning on the base of the methods of resistance of net treats and providing of confidentiality of information flows of corporative net.

Kew words

Remote net access, Algorithms of Scanning and Reconnaissance, Self-Organizing System of Traffic Control for Computing Net.

References

[1] A.P. Alferov, A.K.Zubov, A.S. Kuzmin. Foundations of Cryptography: Textbook. - 2nd ed., Rev. and ext. - M. Helios ART, 2002 - 480

[2] Basynya EA Gun'ko AV Intellectually-adaptive methods for ensuring information network security // Journal "Automation and Software Engineering." - Novosibirsk: Publishing House of the NSTU, 2013 - Issue 3, pp 95-97.

[3] E.A. Basynya, G.A.Frantsuzova, A.V. Gunko. On the prospects of cryptography // Perspective development of science, engineering and technology. Proceedings of the III-rd International Scientific-Practical Conference in 3 volumes. - Kursk: Izd SWSU, 2013 - Volume 1, pp 199-200.

[4] A.V. Gunko, E.A. Basynya. Stochastic methods for ensuring information network security // Actual problems of electronic instrument. Proceedings of the XI International Conference - Novosibirsk: Publishing House of the NSTU, 2011 - Volume 7, p 47-49.

[5] Chris Kasperski. Technique of network attacks - M .: SOLON-P, 2001 - 400 p.

[6] G.A. Frantsuzova, A.V. Gunko, E.A. Basynya. Ensuring information security of the internal corporate network information flow // Science. Technology. Innovation. Proceedings of the All-Russian scientific conference of young scientists in 10 hours. - Novosibirsk: Publishing House of the NSTU, 2013 - Part 2 - P. 41-43.

[7] G.A. Frantsuzova, A.V. Gunko. E.A. Basynya. Development and research of the self-organizing traffic control system computer network // Science. Technology. Innovation. Proceedings of the All-Russian scientific conference of young scientists in 10 hours. - Novosibirsk: Publishing House of the NSTU, 2013 - Part 2 - P. 3-7.

[8] G.A. Frantsuzova, A.V. Gunko, E.A. Basynya. Self-organizing system of computer network traffic management: mechanisms of anti-scanning and probing // Proceedings of the international scientific-practical conference SWorld «Promising innovations in science, education, manufacturing and transport": Abstracts. Mezhdunar.konf. - URL: http://www.sworld.com.ua/index.php/ru/technical-sciences-413/informatics-computer-science-and-automation-413/20781-413-0194.html (date accessed: 16.01.2014) - 4,130,194

Information about the Authors

Evgeny A. Basinya. Novosibirsk State Technical University. Post graduate student.
Email: basinya@mail.ru
Galina A. Frantsizova. Novosibirsk State Technical University. Professor. Doctor of Technical Sciences. Email: frants@ac.cs.nstu.ru
Andrey V. Gunko. Novosibirsk State Technical University. Deputy Professor. PhD, Technical Sciences. Email: gun@ait.cs.nstu.ru

Method of Control of Process of Heat Irradiation in Condenser in Cooling Plant

Vladimir Guzhov, Igor Sazhin, Andrey Sazhin, Vladimir Shumeyko

Abstract

In the paper, parameters of control of two-phase state of refrigerating medium in the condenser of cooling plant are determined. System of automatic control of process of heat irradiation has been developed for the increasing of the effectiveness of cooling plant as a whole.

Kew words

Condenser, Refrigerating Medium, System of Automatic Control.

References

[1] S.S. Kutateladze. Fundamentals of the theory of heat transfer. 5-th Ed., Ext. M. Atomizdat 1979. - 416 p.
[2] V. Maquet, G. - J. Eckert, J. - L. Cauchy. Textbook on refrigeration equipment. (Translated from French.). M. Ed. Moscow State University, 1998 - 1529 s.
[3] B.K. Langley. Refrigeration and Air conditioning. - M. Light and Food Industry, 1981. - 479 p.
[4] Thermal properties of CFCs. Volume 1. Freons of the methane series. Reference data / Altunin VV, V.Z. Geller, E.K. Petrov etc. .: Ed. SA Rivkin; State Standard; GSSSD. - M .: of Standards, 1980 - 232 p., Il. Isachenko VP Osipov VA, Sukomel AS Heat transfer. - M. Energy 1975 - 486s.
[5] J. Hewitt. & Hall - Taylor N. Annular two-phase flow. M. Energy, 1974 - 408c.
[6] Boris A.A., A.V. Lyagov. Determination of the flow regime of gas liquid mixture flows in pipelines for water disposal facilities track Arlanskoe group of fields of "Bashneft". Electronic scientific journal "Oil and Gas Business", 2012, №2, http://www.ogbus.ru.
[7] V.S. Berdnikov, Mitin K.A. Conjugate convective heat transfer in a vertical fluid layer // Bulletin of NSU. Series: Physics, 2012, Volume 7, № 1 p. 70-79.
[8] S.S. Kutateladze, Volchkov E.P., V.I. Terekhov. Aerodynamics and heat transfer in confined vortex flows // Novosibirsk, 1987 - 272 p.
[9] V.I. Terekhov, S.V. Kalina, Lemanov V.V. Mechanism of heat transfer in nanofluids: state of the art (review). Part 1 The thermal conductivity of nanofluids // Thermophysics and Aeromechanics. 2010 - V. 17, N 1. - p. 1-18.
[10] Choi S.U.S. Nanofluids: From Vision to Reality Through Research // J. of Heat Transfer. - 2009. - V. 131. - P. 033106-1 - 033106-9.
[11] Terekhov V.I., Ekaid, A.L. Natural convection between vertical parallel plates with asymmetric heating and cooling // Proc. 6th Baltic Heat Transfer Conference. - № 185, Tampere, 2011. -11 p.
[12] Yu W., France D.M., Routbort J.L., Choi S.U.S. Review and Comparison of Nanofluid Thermal Conductivity and Heat Transfer Enhancements // Heat Transfer Engineering. - 2008. - Vol. 29, №. 5. - P. 432-460.
[13] S.S. Kutateladze, Styrikovich M.A. Hydrodynamics of gas-liquid systems. - M .: Energy 1976 – 296 p.
[14] V.G. Rifert, S.S. Ozimay. The analysis of the regimes of phases flow and of methods of calculation of heat transfer during the condensation inside the horizontal tubes // Heat Transfer in Condensation. Proc. Of the Eurotherm Seminar. October 4-5 - Paris (France), 1995.- P. 78 - 85.
[15] V.I. Terekhov, M.A. Pakhomov Heat and mass transfer and hydrodynamics in a gas-droplet flows. - Novosibirsk: - in the NSTU, 2008 – 284 p.
[16] A.P. Usachov, Ruliov A.V. Determination of the heat transfer rate in flow evaporators propane - butane mixtures with boiling liquid phase. // Electronic scientific journal "Oil and Gas Business», №6, 2012. - p. 376 - 385. http: // www.obus.ru
[17] Boltenko E.A., Kornienko Y.N., Smirnov Y.A., Boltenko D.E. Methods and means for measuring the characteristics of thermally nonequilibrium two-phase flow. // Thermal Engineering. 2001, №3, p. 34-39.
[18] G. Wallis one-dimensional two-phase flows. M .: World, 1972 - 440c.

[19] Shabarov A.B., Vakulin A.A., A.A. Zakharov, Semihina L.P., Saranchin N.V., Vakulin A.A., S.N. Saranchin. Measuring - computer diagnostic system parameters flow and heat transfer of a multiphase mixture in wells and pipelines. // Herald Tyumen State University. 2012, №4. P.74 - 79.
[20] R. Dorf, Bishop R. Modern control systems. M .: Laboratory of Basic Knowledge, 2002 - 832s.
[21] A.A. Voevoda. Polynomial method for calculating multi-channel regulators of a given structure / A.A. Voevoda, V.V. Voronoy. // Sci. Bulletin of NSTU. - 2013. - №2 (51) p.214-218.
[22] A.A. Voevoda. Modal synthesis of multi-channel regulators of reduced order using the "inverse" of the derivative on the example of the three mass system / A.A. Votvoda, V.V. Voronoy, E.B. Shoba // Sci. Bulletin of NSTU. - 2012. - № 1 (46). - P. 15-22.

Information about the Authors

Vladimir I. Guzhov. Novosibirsk State Technical University. Professor of Department of “Data Asquisition Systems”. Doctor of Technical Sciences. Email: e-vig@nstu.edu.ru

Igor A. Sazhin. Novosibirsk State Technical University. Deputy Professor of Department of “Technical Thermp-Physics”. PhD. Email: sajinia@ngs.ru

Andrey I. Sazin. Novosibirsk State Technical University. Student. Faculty of Automation and Computer Techniques

Vladimir A. Shumeiko. Novosibirsk State Technical University. Major Teacher. Department of “Automates and Controlling Systems”. Email: eraserus@cfsf.ru

Modified PID-Regulator

Maxim Skorospeshkin, Vladimir Skorospeshkin, Gennadiy Tsapko

Abstract

The paper demonstrates the possibility of creation of modified PID-regulator on the base of classical PID-regulator supplemented with pseudo-linear chain with amplitude suppression and with the phase forestalling. It is established that the use of such modified PID-regulator allows increasing of the quality of transient processes in systems of automatic control of non-stationary objects. On the base of the fulfilled researches, the conclusion has been stated that the said regulator is useable for the systems in which the parameters are changing in wide range. Therefore, said regulator can be treated as robust one.

Key words

Modified PID-regulator, pseudo-linear chain with amplitude suppressing, pseudo linear chain with phase forestalling, quality of control, non-stationary controlled object.

References

[1] Besekersky V.A., Popov E.P. The theory of automatic control systems. M .:. Science, 1975.
[2] M.V. Skorospeshkin. Adaptive Pseudo Correctors of Dynamic Characteristics of Automatic Control Systems // Tomsk Polytechnic University. - 2006 - T. 309. - №7. - P. 172 - 176.
[3] Skorospeshkin M.V. Skorospeshkin V.N. Pseudo Correcting Device with a Phase Advance // Utilite model Patent №104332 (RU 104 332 U1) On request №2010149922 / 08 of 03.12.2010. Published: 10.05.2011 RU BIPM №13.
[4] E.I. Hlypalo. Nonlinear Corrective Devices and Automatic Systems. Leningrad: Publishing. Energy, 1973.

Information about the Authors

Maksim V. Skorospeshkin. Institute of Cybernetics in Tomsk National Researching Politecnical University. Deputy Professor of Department of Automation and Computer Systems. PhD.
E-mail: smax@tpu.ru.

Vladimir N. Skorospeshkin. Institute of Cybernetics in Tomsk National Researching Politecnical University. Deputy Professor of Department of Automation and Computer Systems. PhD.
E-mail: shedar@tpu.ru.

Gennady P. Tsapko. Institute of Cybernetics in Tomsk National Researching Politecnical University. Professor. Head of Department of Automation and Computer Systems. Doctor of Technical Sciences. E-mail: tsapko@aics.ru.

© Automatics & Software Enginery. 2014, № 1 (7)

Adaptive System for Temperature Control of Thermal Excanger

Maxim Skorospeshkin, Vladimir Skorospeshkin, Gennadiy Tsapko

Abstract

The paper demonstrates the possibility of creating of adaptive system of automatic control of thermal exchanger temperature on the base of PI-regulator and successive adaptive pseudo-linear correcting elements with phase forestalling, which increases the phase stability margin for the case of changing of controlled object parameters. It is established that the use of such proposed adaptive system allows sufficient increasing of the quality of transient processes in systems of automatic control of non-stationary objects. On the base of the accomplished researches, the conclusion is made that the quality of the proposed system remains much better if compared with this of system with PI-regulator when the delay of object is changing.

Key words

Adaptive system of control, pseudo-linear chain with phase forestalling, non-stationary controlled object, quality of control.

References

[1] V.V. Soldatov, P.E. Ukharov. Adaptive Adjustment of Control Systems with PID Regulators under the Information Uncertainty // Devices and Systems. Management, Monitoring, Diagnostics. 2004. № 8. p. 16-20.

[2] Sh.E. Shteynberg, I.E. Zalutsky, L.P. Seryozhin, I.G. Varlamov. Adjustment and Adaptation of Automatic Regulators. Toolkit programs // Industrial Automated Control Systems and Controllers. 2003. № 10. p. 43-47.

[3] M.V. Skorospeshkin. Adaptive Psevdolinear Correctors of Dynamic Characteristics of Automatic Control Systems // Tomsk Polytechnic University. 2006 T. 309. № 7. p. 172-176.

Information about the Authors

Maksim V. Skorospeshkin. Institute of Cybernetics in Tomsk National Researching Politecnical University. Deputy Professor of Department of Automation and Computer Systems. PhD.
E-mail: smax@tpu.ru.

Vladimir N. Skorospeshkin. Institute of Cybernetics in Tomsk National Researching Politecnical University. Deputy Professor of Department of Automation and Computer Systems. PhD.
E-mail: shedar@tpu.ru.

Gennady P. Tsapko. Institute of Cybernetics in Tomsk National Researching Politecnical University. Professor. Head of Department of Automation and Computer Systems. Doctor of Technical Sciences. E-mail: tsapko@aics.ru.

Software Complex of Fuzzy-Determinated Modeling of Hidrological Objects

R.N. Usmanov, K.K. Seitnazarov

Abstract

The paper proposes structure of software complex for modeling of geo-filtration processes in plane in the conditions of fuzzy initial information. The questions of fuzzy-determined modeling based on fuzzy formalization of the parameters of water supply points of underground waters are discussed. The results of numerical experiments at the example of monolayer geo-filtration system are produced.

Key words

Water supply points of underground waters, fuzzy-determined approach, numerical process, information model, geo-filtration, function of belongings.

References

[1] O. Kaleva. Fuzzy differential equations. Fuzzy Sets and Systems, 24 (1987), p.301-307.
[2] O. Kaleva. The Cauchy problem for fuzzy differential equations. Fuzzy sets and systems, 35 (1990), p.389-396.
[3] O.Fazajzadeh. An Explicit Method for Soling Fuzzy Partial Differention Equation. International Mathematical Forum, 5, 2010, №21, p.1025-1036.
[4] A.A. Akramov. Regulation reserves of fresh water in underground reservoirs of Central Asia. - Tashkent: FAN Uzbek Academy of Sciences. 1991 - 216 p.
[5] A.A. Akramov. The technology of artificial groundwater recharge at intakes Aral Sea region. - Tashkent: SGE "Uzbekhydrogeology", 1977. - 165 p.
[6] Altunin A.E., Semukhin M.V. Models and algorithms for decision making in fuzzy environment. - Tyumen Univ Tyumen State University, 2000 – 352 p.
[7] I.K. Gavich. Methods for the protection of groundwater against pollution and deterioration. - M .: Nedra, 1985 - 320 p.
[8] Rothstein A.P., Loikaw E.E., Katelnikov D.I. Forecasting the number of diseases on the basis of expert-linguistic information // Cybernetics and Systems Analysis. -1999.-№2.- p.178-185.
[9] Rothstein A.P. Katelnikov D.I. Identification of nonlinear objects fuzzy knowledge bases // Cybernetics and Systems analiz. - 1998. - №5. - p.53-61.
[10] Samara A.A., Mikhailov A.P. Mathematical modeling: Ideas. Methods. Examples. 2-nd ed. Correctrd.- M .: Fizmatlit, 2005.-300 p.-ISBN 5-9221-01-20-x.
[11] A. Samara, Frazin I.V. Difference approximation methods for problems of mathematical physics // UMN. - Moscow, 1976. - T.31. - p. 167-197.
[12] R.N. Usmanov. On the question of intellectualization of fuzzy control complex processes (for example, where groundwater is abstracted) // Herald Tuit. - 2007. - №1. - P. 46-49.
[13] R.N. Usmanov. On the question of the numerical simulation of the formation and operation of groundwater is abstracted in a fuzzy information // Herald Tash GTU. - Tashkent, 2006 - №2.- p.3-6.
[14] R.N. Usmanov. Fuzzy modeling of technological processes of water intake in the artificial groundwater recharge // Chemical Technology. Control and management. - Tashkent, 2007. - №1.- p. 63-69.
[15] R.N. Usmanov, Seitnazarav K.K. Substantiation of technological schemes where groundwater is abstracted for single-layer reservoirs under fuzzy initial information // Chemical Technology. Control and management. № 3. 2013. p. 58 - 63.
[16] RN Usmanov, Djumanov Zh.Kh., Seitnazarov KK, Oteniyazov RI Software package for information and numerical modeling geofiltration processes in single layers // Certificate of Deposit of intellectual property number 1723 from 12.02.2014.

Information about the Authors

Rishat N. Usmanov. Tashkent University of Information Technologies. Professor of the Department “Computer Systems”. Doctor of Technical Sciences. E-mail: rishat.tuit@mail.ru
Kuanishbay K. Seintazarov. Tashkent University of Information Technologies. Major Science Recearches of the Department “Computer Systems”. E-mail: Seytnazarov82@mail.ru.

Integrated Electronic Medical Records of the Child

Alexey Ponomarev, Eduard Merker

Annotation

The problem of the organization of a single, integrated child health card, which would contain necessary for timely diagnosis data, would provide the solution of social problems, possibility of using the generalized information to reduce morbidity.

Key words

Architecture, web services, medical document, monitoring, high load.

References

[1] Thesis: The state policy in the field of maternal and child health El. Resource [http://bestreferat.ru/referat-108495.html] (date accessed: 04/23/2014).

[2] OPEN UMS - Russia's new open format medical documents Materiali VII mizhnarodnoi konferentsii Abstracts of the VII International Conference "Telemedicine-Experiance & Procpects". Ukraine Journal of Telemedicine is the medichnoї telematics / Donetsk, 2011 Vol. 9. № 1. 2011. p. 11-12.

[3] Design and implementation of a regional health information system using cloud computing. Economics, Statistics and Informatics. Bulletin of UMO, 2013 - № 3. - p. 172-175.

[4] GeoLite Free Downloadable Databases E. Resource [http://dev.maxmind.com/geoip/legacy/geolite/] (date accessed: 23/04/2014).

[5] Bringing Location to the Internet Resource [http://www.ip2location.com/developers.aspx] (date of access: 04/23/2014).

Information about the Authors

Alexey Anatolievich Ponomarev. PhD, Assistant Professor of the Department of Automatics and Computer Systems Institute of Cybernetics National Research Tomsk Polytechnic University.
E-mail: aaponomarev@tpu.ru
Eduard Stepanovich Merker. Plastic surgeon. Doctor of the highest category. CEO of LLC «Medical information technology». Email: merker@yandex.ru

Software for Determining the Indeces of Causality for Linear Input-Output Dynamic Systems

A. M. Malyshenko, E. A. Rybakov, T. A. Kochetkova

Abstract

Essence of causality of input-optput systems has been determined; its quality metering has been shown with the use of causality indeces. Information about the calculation of these indeces of the system with the helps of its matrices of the contiguity and attainability is given. Also software is used which has been developed by the authors for the case of linear dynamic systems in which the processes are described by mathematic modeles with continous and discrete time.

Key words

Linear input-output dynamic system, automatic control system, plant, causality, indexes of causality, definition, calculation, software.

References

[1] I.A. Krishtal. Spectral analysis of causal operators: dissertation for Candidate. Sci. Sciences degree. - Voronezh, 2003 - 112 p.
[2] D. C.Youla, H. L.Carlin, L. J. Castriota. Bounded Real Scattering Matrices and the Foundations of Linear Passive Network Theory // IRE Trans. Circuit Theory CT-6. – 1959. – P. 102–124.
[3] A. Feintuch, R. Saeks. System Theory: A Hilbert Space Approach. – New York: Academic press, 1982. – 310 pp.
[4] J. C. Willems. Stability, Instability, Invertibility and Causality, SIAM J. Control. – 1969. – V. 7. – № 4. – P. 645–671.
[5] R M. DeSantis. Causality, Strict Causality and Invertibility for Systems in Hilbert Resolution Space // SIAM J. Control. – 1974. – V. 12. – № 3. – P. 536–553.
[6] C. Commault, J. F. Lafay, M. Malabre. Structure of linear systems. Geometric and transfer matrix approaches // Kybernetika. – 1991. – V. 27. – № 3. – P. 170–185.
[7] J. Hammer. Stabilisation of non-linear systems // Int. J. Control. – 1986. – V. 44. – № 5. – P. 1349–1381.
[8] J. Hammer. Robust stabilisation of non-linear systems // Int. J. Control. – 1989. – V. 49. – № 2. – P. 629–653.
[9] J.-T. Chan, L.-F. Wei. Adaptive multi-channel signal tracking controller for minimum or nonminimum phase systems // Int. J. Control. – 1989. – V. 50. – № 1. – P. 65–73.
[10] S. K.Rao, C.-T. Chen. Design of minimal-degree compensators with assignable poles or structure // Automatica. – 1987. – V. 23. – № 2. – P. 241–245.
[11] H.G. Lee, A. Aropostathis, S. I. Mareus. Linearisation of discrete-time systems // Int. J. Control. – 1987. – V. 45. – № 5. – P. 1803–1822.
[12] G. Roppenecker, B. Lohmann. Vollstandige Modale Synthese von Entkopplungsregelungen // Auto- matisierungstechnik. – 1988. – V. 36. – № 11. – S. 434– 441.
[13] A.M. Malyshenko. Defining of Indexes of causality of controlled dynamic systems // News of USSR Academy of Sciences, Technical Cybernetics. - 1990. - № 1. - p. 32-36.
[14] A.M. Malyshenko. Automatic control system with excess dimension of the control vector. - Tomsk: Publishing House of the Tomsk Polytechnic University, 2005 - 302 p.
[15] AM Malyshenko. Indices causality of dynamical systems and their use in skhemotehni-cal design and in the evaluation of functional reproducibility of automatic control systems // the Tomsk Polytechnic University, 2013, vol. 323, № 5, c. 37-44.
[16] A.M. Malyshenko, E.A. Rybakov, E.A. Kochetkov. Software for calculation of indices of linear causality of input-output dynamic systems. Certificate of state registration of the computer number 2013619662 from 11.10.2013.

Information about the Authors

Aleksander M. Malishenko. National Recearching Tomsk Politechnikal University. Professor of the Department of Integrated Computer Controling Systems. Doctor of Technical Sciences.
E-mail: mam@tpu.ru

Evgeny A. Ribakov. National Recearching Tomsk Politechnikal University. Student of the Department of Integrated Computer Controling Systems. E-mail: evgrybakov@gmail.com

Evgeniya A. Kochetkova. National Recearching Tomsk Politechnikal University. Student of the Department of Integrated Computer Controling Systems. E-mail: Kjanni22@gmail.com

© Automatics & Software Enginery. 2014, № 1 (7)

Subject Parameterization of Virtual Mannequins

S.N. Grudinin, V.D. Frolovsky

Abstract

The article deals with analysis of the human body anthropometric characteristics for the purpose of determining boundaries of the parameters changing and their interconnections within a problem of parametric modeling of computer mannequins.

Key words

Parameterization, Mannequin, standard figures, Dimensional features, convex hull.

References

[1] V.D. Frolovskii. Computer design of the mannequins and clothing. Three-dimensional models and mathematical methods. Publishing house: LAP LAMBERT Academic Publishing, Saarbrucken, Germany, 2012. - 269 p.
[2] Wang C.C.L. Parameterization and parametric design of mannequins // Computer-Aided Design. 2005. Vol. 37. № 1. pp. 83–98.
[3] Lin S.-F., Chien S.-C. Create a Virtual Mannequin Through the 2-D Image based Anthropometric Measurements and Radius Distance Free Form Deformation // International Journal of Advanced Computer Science and Applications (IJACSA). 2011. Vol. 2. № 4. pp. 60–67.
[4] G. Balzhirsuren, V.D. Frolovskiy. Computer-aided design of non-standard parameterized 3D mannequins // Scientific Bulletin of the NSTU. 2009. № 1 (34). p. 117-128.
[5] GOST 17522-72. Typical figures of women. Dimensional signs for designing clothes.
[6] OST 17-326-81. Ready-made garments, knitwear, fur. Typical figures of women. Dimensional signs for designing clothes.
[7] OST 17-474-75. Mannequins for women's clothing.
[8] GOST 31396-2009. Classification of typical figures of women on the growth, size and stoutness groups for designing clothes.
[9] Typical figures of women. Dimensional signs for designing clothes. M: CNIIShP, 2003, 93 p.
[10] E.B. Koblyakova, Dunaevskaya T.N., Ivlev G.S., Ievleva R.V. Dimensional typology of the population with the fundamentals of anatomy and morphology. M: Clash; Publishing Center "Academy", 2001. 288 p.
[11] Chu C.-H., Tsai Y.-T., Wang C.C.L, Kwok T.-H. Exemplar-Based Statistical Model for Semantic Parametric Design of Human Body // Computers in Industry. 2010. Vol. 61. № 6. pp. 541–549.
[12] Kanatnikov A.N., A.P. Kryschenko. Linear Algebra: Proc. for universities. M.: of MSTU honored to Bauman, 2002. 336 p.
[13] Barber C.B., Dobkin D.P., Huhdanpaa H.T. The Quickhull algorithm for convex hulls // ACM Transactions on Mathematical Software. 1996. Vol. 22. № 4. pp. 469–483.
[14] Osada R., Funkhouser T., Chazelle B., Dobkin D. Shape Distributions // ACM Transactions on Graphics. 2002. Vol. 21. № 4. pp. 807–832.

Information about the Authors

Sergey N. Grudinin. Novosibirsk State Technical University. Post graduate student of Department of Autonated Controling Sustems. E-mail: sn_grudinin@mail.ru

Vladimir D. Frolovskiy. Novosibirsk State Technical University. Professor of Department of Autonated Controling Sustems. Doctor of Technical Sciences. E-mail: vdf-nstu@yandex.ru

Optimization of Regulator for Multi-Channel Objects with the Developing of the Idea of Smith's Predictor

Vadim ZHMUD, Oleg YADRISHNIKOV

Abstract

The problem of control of multi-channel objects in which the influence between many (all) inputs and many (all) outputs, it very important. That is so because such problems are often occur in a lot of real situations. With all that, analytic methods are developed only for linear systems immediately. The using of modeling and numerical optimization allows heve a solution of this task more effectively. Nevertheless, in this case transient processes in the system have often not satisfactory quality because of the big overshooting. The developing of the idea of Smith predictor and by-pass channel for the multi-channel case with the using of the numerical optimization after that as well as the use of accordingly modified cost function allows proposing of the new methodic of control of multi-channel objects containing great delay. The methodic is tested on the example.

Key words

Automation, Regulators, Multi-channel Systems, Numerical Optimization, Modeling

References

[1] V.A. Zhmud, V.M. Semibalamut, R.Yu. Ishimtsev. Regulator for the system with feedback. Patent for the invention of the Russian Federation RU 2368933 C1. G05B 11/14. Publicated.27.09.09. Bull. № 27. Application number 2008110243, Copyright: Institute of Laser Physics SB RAS.

[2] V.A. Zhmud, A.A. Voevoda, V.M. Semibalamut, R.Yu. Ishimtsev. Regulator for multi-dimensional object. Utility model patent of Russian Federation RU 93994 U1. G01R 23/02, G01P 3/36. Published.10.05.10. Bull. № 27. Application № 2009138894/22 from 20.10.2009, the right holder: Novosibirsk State Technical University and the Institute of Laser Physics SB RAS.

[3] Zhmud V.A., Semibalamut V.M., Voevoda A.A. Adaptive system for the regulation and stabilization of physical quantities. Patent for the invention № 2457529. priority from 11.01.2011. Application № 2011100407. Registered 27.07.2012. Valid until 11/01/2031. Copyright: The establishment of the RAS Institute of Laser Physics, Siberian Branch (RU)

[4] Zhmud V.A. Simulation, study and optimization of locked systems of automatic control. Novosibirsk, Publishing House of the State Technical University, 2012 - 335 p.

[5] R.Yu. Ishimtsev, A.A. Voevoda, V.A. Zhmud. Bypass channel for scalar ACS and multidimensional objects: comparison with Smith predictor // Collected scientific works NSTU. Novosibirsk. 2008. N 2 (52). p.11-22.

[6] V.A. Zhmud, O.D. Yadryshnikov. Numerical optimization of PID regulators using the correct movement detector in the objective function. Automation and software engineery. 2013. № 1 (3). p. 24-29.

Information about the Authors

Vadim A. Zhmud. Head of the Department of Automation in NSTU. Professor. Doctor of Technical Sciences. E-mail: oao_nips@bk.ru

Oleg D. Yadrishnikov. Novosibirsk State Technical University. Post graduate student of Department of Automation. E-mail: oleg_yadr@mail.ru

Processes of Forming of Nano-Structures during Concretion of Clusters to Surface of Crystalls with the Helps of Computer Modeling

A.M. Rasulov, A.A. Dzhurahalov, I.D. Yadgarov, V.G. Stelmakh

Abstract

A report is presented by computer simulation method about progress in the understanding of the properties of metallic nano-dimension particles, their interaction with surfaces subsequent to low energy slowing down and the properties of nano-structured materials formed with these particles.

Key words

Computer simulation, cluster, nanostructure, method molecular dynamics, introduction, thin films, Linked-Cell algorithm.

References

[1] M. Hou, V.S. Kharlamov and E.E. Zhurkin; Phys. Rev. B66, 195408-1 (2002)
[2] A. Dzhurakhalov, A. Rasulov, T.Van Hoof, M. Hou, The European Physical Journal, D31, 53-61 (2004)
[3] P. Moskovkin and M. Hou; Eur. Phys. J. D27, 231 (2003)
[4] B. Degroote, A. Vantomme, H. Pattyn, K. Vanormelingen; Phys. Rev. B65, 195401 (2001)
[5] B. Degroote, A. Vantomme, H. Pattyn, K. Vanormelingen, M. Hou; Phys. Rev. B65, 195402-1 (2001)
[6] T. Van Hoof, M. Hou; Eur. Phys. J. D29, 33 (2004)
[7] Q. Hou, M. Hou, L. Bardotti, B. Prével, P. Mélinon and A. Perez; Phys. Rev. B62, 2825 (2000)
[8] W.C. Swope, H.W. Andersen, P.H. Berens, K.R. Wilson; J. Chem. Phys. 76, 1 (1982).
[9] D.J. Oh, R.A. Johnson; J. Mater. Res. 3, 471 (1988); R.A. Johnson, Phys. Rev. B 39, 12554 (1989)

Information about the Authors

A.M. Rasulov. Andizhan State University. Professor of Departmennt of Informatics. Doctor of Phisics and Mathematica Sciences. E-mail: arasulov59@mail.ru

A.A. Dzhurokhalov. Full Professor in University of Antwerp. Doctor of Phisics and Mathematica Sciences. E-mail: dzhurakhalov@mail.ru

I.D. Yadgarov. Institute of Ion-Plasma and Laser Technologies Uzbek Academy of Sciences. PhD. Major Science recearcher. E-mail: iyadgarov@mail.ru

V.G. Stelmakh. Institute of Ion-Plasma and Laser Technologies Uzbek Academy of Sciences. Science recearcher. E-mail: stel@mail.ru

D.K. Akhmadaliev. Andizhan State University. Science recearcher of Departmennt of Informatics. E-mail: ilmiyor@mail.ru

© Automatics & Software Enginery. 2014, № 1 (7)

Effectiveness of PID-regulator Fullness for Control of Multi-Channel Objects

Vadim ZHMUD, Oleg YADRISHNIKOV

Abstract

In the solution of the problem of control of multi-channel objects which has many crossing connections truncated PID-regulators are often used, which has proportional, derivative and integrating elements only in the main diagonal. In the rest channels of such regulator integrating element is absent. Logic of such choice is based on the proposition that for astatic control of N output values it is sufficient of the using of N integrators. But the researches indicated that in some cases such approach restricts the possibilities of the joint achievement of demanded dynamic and static accuracy. The comparing of the control results is tested on the example.

Key words

Automation, Regulators, Multi-channel Systems, Numerical Optimization, Modeling

References

[1] V.A. Zhmud, O.D. Yadryshnikov. Numerical optimization of PID regulators using the correct movement detector in the objective function. Automation and software engineery. 2013. № 1 (3). p. 24-29.

[2] V.A Zhmud, O.D. Yadryshnikov. Regulator optimization for multi-channel objects by the development of ideas of Smith predictor. Automation and software engineery. 2014. № 1 (7). 2. 57-67.

[3] Zhmud V.A. Simulation, study and optimization of locked systems of automatic control. Novosibirsk, Publishing House of the State Technical University, 2012 - 335 p.

Information about the Authors

Vadim A. Zhmud. Head of the Department of Automation in NSTU. Professor. Doctor of Technical Sciences. E-mail: oao_nips@bk.ru

Oleg D. Yadrishnikov. Novosibirsk State Technical University. Post graduate student of Department of Automation. E-mail: oleg_yadr@mail.ru

© Automatics & Software Enginery. 2014, № 1 (7)

Automatization of Process of Calibration of Manometers Scales

S.M. Alferov, A.M. Korikov

Abstract

The systematic analysis of technology processes for assembling and calibrating of manometers has been accomplished, advantages of the existing technological process are determined. Authors proposed the realization of the stages of autoimmunization of the processes of individual calibration of manometers, which are the following: automated test bench, connecting device for computer and valves, pressure controlling system, sensor of angle of pointing needle, program for scale printing. The main component of automated system for manometers calibration is hydraulic plant setting the pressure, which is used for the uniform rising and lowering of pressure to the calibrated manometers. When the processes in pressure setting device are simulated, the non-linear dependence are become apparent, which makes it difficult the researching and calibration processes. The paper discusses some variants of linearization of calibration processes. The recommendations for the design of algorithms for controlling system and robotic realization of technology processes are based.

Key words

Control, automation, modeling, manometers, calibration.

References

[1] Svinolupov Y.G., Kuznetsov A.A. Results of the development and introduction of new technologies of automated adjustment switches gauges. Advances in science - production. Collection of articles edited by A.A. Svetlakov, J.G. Svinolupov. Tomsk: - TSU, 2003, p. 16 - 62.
[2] A.A. Lazichev, Samuleva Yu.A. The system of automated tuning of gauges by applying scales // Mechatronics, Automation, Control. 2008. № 8. - P. 35-38.
[3] The process for individual calibration of scales and gauges device for its implementation // A.Y. Getz, V.I. Machkinis, S.M. Vezner, A.Yu. Metalnikov, S.M. Alferov, A.G. Tsarenko // RF Patent number 2428668, registered in the State Register of the Russian Federation 10.09.2011
[4] The theory of information processes and systems: a textbook for stud. Universities / Ed. B.J. Sovetov. M .: Center "Academy", 2010. 432 p.
[5] S.M. Alferov. Angle measurement near the object boundaries in the low-resolution video frame using a priori information // Speaches of Tomsk. State Univ. of Control Systems and Radioelectronics (TUSUR). 2011. № 1 (23). p. 168-170.
[6] S.M. Alferov, Korikov A.M. Automation of assembly processes and setting gauges // Speaches. Tomsk. State Univ. of Control Systems and Radioelectronics (TUSUR). 2011. № 2 (24), part 3, p. 121-128.
[7] S.M. Alferov, Korikov A.M. Simulation of the pressure vessel to adjust gauges // Speaches. Tomsk. State Univ. of Control Systems and Radioelectronics (TUSUR). 2012. № 2 (26), Part 1. p. 193-198.

Information about the Authors

Сергей Алфёров. Tomsk. State University of Control Systems and Radioelectronics (TUSUR). Assistant. E-mail: alhoresm@sibmail.com

Anatoly Korikov. Tomsk. State University of Control Systems and Radioelectronics (TUSUR). Professor. Doctor of Tachnical Sciences. E-mail: alhoresm@sibmail.com

The use of Internet for Interactive Laboratory Work for the Distance Control of Robot-Snow-Fightong Vecicle

Vitaly Trubin, Aleksey Eskin, Andrey Pechnikov, Vadim Zhmud

Abstract

The paper describes firmware and gives methodical receipts for laboratory work for students which pass training course according the project TEMPUS-MPAM, and also for fifth-year students on the education direction “220400.68 – Control in Technical Systems”, Master Program “Complex Systems of Automation”. The goal of the work is study of remote control of acting robot model with the helps of protocol XMPP with visual control of the results by means of software Skype.

Key Words

Mechatronics, Automation, Remote Control, Robotics, Higher Technical Edcation, Double-Diploma Master Program.

References

[1] XMPP - Wikipedia, the free encyclopedia: http://ru.wikipedia.org/wiki/XMPP.
[2] Python - Wikipedia, the free encyclopedia: http://ru.wikipedia.org/wiki/Python.
[3] Bluetooth - Wikipedia, the free encyclopedia: http://ru.wikipedia.org/wiki/Bluetooth.
[4] Lego Mindstorms [electronic resource]: http://www.lego.com/en-us/mindstorms/.
[5] STM32VLDISCOVERY. Discovery kit for STM32F100 Value Line - with STM32F100RB MCU: http://www.st.com/web/catalog/tools/FM116/SC959/SS1532/LN1199/PF250863?s_searchtype=partnumber.
[6] A.V. Eskin, V.A. Zhmud, V.G. Trubin. Build Platform simulates a robotic devices based on the designer Lego Mindstorms NXT 2.0 in terms of motor control. // Automation and Software Engineery. 2013. № 3 (1). p. 88-94.: http://nips.ru/images/stories/zhournal-AIPI/3/Paper-2013-1-13.pdf.
[7] A.V. Eskin, V.A. Zhmud, V.G. Trubin. Implementation of remote control via radio Bluetooth platform simulates a robotic agents. // Automation and Software Engineery. 2013. № 3 (1). p. 82-87. [Electronic resource]: http://nips.ru/images/stories/zhournal-AIPI/3/Paper-2013-1-12.pdf.
[8] A.V. Eskin, V.A. Zhmud, V.G. Trubin. Wireless serial port extension on the basis of radio Bluetooth. // Automation and Software Engineery. 2013. № 2 (4). p. 42-47.: http://www.nips.ru/images/stories/zhournal-AIPI/5/AIPI-2-2013-05.pdf.
[9] 7-Zip. File archiver with a high compression ratio.: http://www.7-zip.org/.
[10] Skype. Free calls to mobiles and landlines.: http://www.skype.com/ru/.
[11] Bluesoleil.: http://www.bluesoleil.com/index.aspx.

Information about the Authors

Aleksey V. Eskin. Limited Liability Company “Design Bureau “Automatics”. Leading engineer. E-mail: kba-elma@bk.ru
Vadim A. Zhmud. Head of the Department of Automation in NSTU. Professor. Doctor of Technical Sciences. E-mail: oao_nips@bk.ru
Vitaly G. Trubin. Head of laboratory in Department of Automation in NSTU. Director of Limited Liability Company “Design Bureau “Automatics”. E-mail: trubin@ngs.ru
Печников Андрей Львович, Limited Liability Company “Design Bureau “Automatics”. Leading engineer. E-mail: trubin@ngs.ru

© Automatics & Software Enginery. 2014, № 1 (7)

Precision Measuring of Frequency for Attectation of Frequency Standards

Vadim Zhmud

Abstract

The paper discusses methods of precision measuring of frequency. The paper discovers disadvantages of frequency counting method and gives the basis of the method of integer periods. Paper gives structure of the device and algorithmic basis of the according program for the processing of primary measuring results for the delivering of the demanded values of measuring of frequency.

Key words

Measuring of frequency, Allen (Alen) parameters (Function).

References

[1] V.I. Andriushkin, R.N, Faustov, V.P. Shelest. Basic physical constants and physics of micro world. In book: Quantum metrology and basic constants. Collection of papers. Moscow. Publishing House “World”. 1981., p.3-16.

[2] Rutman Zh. Characteristics of signal’s phase and frequency non-stability for high-stable oscillarots: results of the development dur fifteen years // Proc. IEEE, 1978. 66, № 9.p. 70 - 102.

[3] S.V. Barmasov, V.A. Zhmud. Hardware for automatic tuning of the difference frequency of the two lasers. Sience Instruments (Pribori i technika eksperimenta). 2000, N 3, p. 104-106.

[4] B.D. Borisov, V.A. Valiliev, A.M. Goncharenko, V.A. Zhmud. Methodic of the estimation of stability of frequency standards. // Optoelectronics … (Avtometriya), 2002, №3, p. 104 – 112.

[5] V.A. Zhmud. Frequency measurements in precision laser systems. Science Bulletin of NASU. Novosibirsk. 2002. N 2(13). c. 127-136.

[6] RF Patent N 2210785 (Priority Date 13.07.2001.) Digital frequency counter. V.A. Vasiliev, V.A. Zhmud, A.M. Goncharenko. Publicated: State reester of inventions of RF. Bulletin. N23, 20.08.2003.

[7] V.A. Zhmud. Theorem of Kotelnikov-Nyquist-Shennon, Unsertanty principle and Relativistic theory. Automatica snd Software Enginery. 2014. №1 (7). p. 127–136. NSTU.

Information about the Authors

Vadim A. Zhmud. Head of the Department of Automation in NSTU. Professor. Doctor of Technical Sciences. E-mail: oao_nips@bk.ru

What does APV means?

Nematzhon Rakhimov

Abstract

This paper presents the results of researches of the effects of abnormally high photovoltaic voltage (APV) in the semiconductor film systems. The possibility of using of open channel optical couples for optoelectronic systems based on transmitter and APV-receiver was investigated. On the basis of APV-films new systems for various optoelectronic has been developed.

Key words

APV-films, optoelectronics, scientific information.

References

[1] The photoelectric phenomena in semiconductors and optoelectronics. Edited by E.I. Adirovich. Tashkent. 1972. C. 143–229.

[2] Starkirkiewics J., Sosnovski L., Simpson O. Photovoltaic effect exhibited in Highjresletance Semiconducting Films / Nature, 1946. Vol. 158, P. 28.

[3] R.Ya. Berlaga, M.A. Rumi, L.P. Strekhov. “Apearance” of EMF under illumination of lead-sulfide photoresistors / Journal of Theoretical Physics. 1954. Vol.24. N5. P.943.

[4] Scawade G. - Zs. für Naturforschung, 1955. Vol. 10. P. 78.

[5] Piwkowski B.T. PbSe and PbTl infra red detectors / Acta Phys. Pol., 1956. Vol. 15, № 4. P. 271-274.

[6] E.M. Mastov. The study of the anomalous large Photomagnetic effect in films of cadmium telluride. Thesises for PhD defence. Tashkent. 1972. – 125 p.

[7] Yu.M. Yuabov. Semiconductor films with an anomalously large photovoltage: dis. Thesises for PhD defence. - Tashkent, 1965 - 90.

[8] T. Mirzamahmudov. Research APV effect in semiconductor films with a narrow band gap: Thesises for PhD defence. - Tashkent, 1971 - 125 p.

[9] N. Shakirov. Kinetics and characteristic times of the APV effect in semiconductor films with micro p-n-junction: Thesises for PhD defence.- Tashkent, 1970. -180 p.

[10] R. Naymanbaev. The study of the photoelectric properties of the APV films of telluride of cadmium and three selenide antimony and development on their basis of optoelectronic devices: Thesises for PhD defence. - Tashkent, 1977 - 126 p.

[11 V.M. Lyubin, G.A. Fedorova. High voltage photo-emf in layersof three selenide antimony / FTT, 1962, Volume 4, № 8. p. 2027-2030.

[12] R. Naymanbaev, O. Mamanov. Application APV-photodetectors as primary transmitters of information. Uzbekian Physocal Journal. 1993. № 6. S. 30.

[13] Zh. Ergashev. Research photoelectret properties of semiconductor structures diaper with micro-p-n-junctions: Thesises for PhD defence. Sci. Sciences. - Vilnius, 1981 - 120 p.

[14] N.R. Rakhimov. Recearch of photovoltaic properties of the APV-cadmium telluride films with silver and development of optoelectronic devices based on them: Thesises for PhD defence. - Tashkent, 2001. 140 p.

[15] N.R. Rakhimov, O.K. Ushakov. Optoelectronic sensors based on the APV-effect. - Novosibirsk, 2010, 218 p.

Information about the Authors

Nematzhon R. Rakhimov. Novosibirsk State Technical University. Proffessor of the Department of Information Defence. Doctor of Technical Sciences. E-mail: nerah@rambler.ru

Nyquist-Shennon and Kotelnikov Theorem, the Uncertainty Principle, and the Speed of Light

Vadim Zhmud

Abstract

The paper discusses the problem of contradiction between some science thesises. Namely: a) Nyquist theorem states that the interpolation of spectral limited function can be given with their samples under certain conditions arbitrarily accurately; b) Theory of relativity states that no material particle can move faster than the speed of light in vacuum, which implies limitation of any spectral function describing the trajectory of any material particle; c) the Uncertainty Principle asserts that the possibility of such interpolation is limited by the Uncertainty Principle, whereby the product of the coordinates error to run-time error is preassigned constant. Thus the Uncertainty Principle contradicts the Theory of relativity. The article suggested the possible direction of the resolving of this contradiction.

Key words

Special Relativism Theory, Nyquist Theorim, Kotelnikov Theorem, Uncertainty Pronciple

References

[1] http://www.biograph.comstar.ru/bank/kotelnik.htm
[2] http://compmus9.valuehost.ru/galglory/koteln3.htm
[3] S.I. Baskakov, Radio Circuits and Signals p.117.
[4] http://grigam.narod.ru/inform/inf6.htm
[5] http://graphics.cs.msu.su/courses/cg_el00/kotelnikov.pdf
[6] http://nuclphys.sinp.msu.ru/spargalka/new/a02.htm
[7] http://www.chemistry.ssu.samara.ru/chem1/22_geiz.htm
[8] http://psylib.ukrweb.net/books/hokin01/txt04.htm
[9] Yu.B. Rumer, Rivkin, M.S. The theory of relativity. M. Uchpedgiz, 1960 - 212 p.
[10] A. Einstein. Coll. of papers, 4 Vols., Nauka. - 1965 - Volume 1.
[11] L. Brillouin. New look at the theory of relativity. M .: Publishing house “World”. – 1972. - 142 p.
[12] V.A. Zhmud. Nyquist theorem, the uncertainty principle and the limiting nature of the speed of light. http://samlib.ru/z/zhmudx_w_a/teorema.shtml
[13] The modeling of the electron movements inside the atom on the base of the non-quantum physics Zhmud, V.A., Bugrov, S.V. 2009 Proceedings of the IASTED International Conference on Applied Simulation and Modelling, ASM 2009.
[14] V.A. Zhmud. Justificationfor non-relativistic non-quantum approach to modeling the electron motion in a hydrogen atom // Collected scientific works NSTU. Novosibirsk. 2009.N 3 (57). p. 141 - 156.

Information about the Authors

Vadim A. Zhmud. Head of the Department of Automation in NSTU. Professor. Doctor of Technical Sciences. E-mail: oao_nips@bk.ru

Requirements to manuscripts in a scientific electronic journal “Automation & Software Enginery”

Topics

Automation, Robotics, avtomatized systems, software systems and tools (software engineering), information security, networking, National software platform (GMP), cloud computing, innovation, information technology, simulation systems, free and open source software, methods and tools for measuring, measuring equipment, physics measurements.

Target Audience of the Journal

Scientific, educational and engineering staff: graduate students, doctoral candidates and students, representatives of business in the area information technologies and automation.

Basic Requirements to manusctipts

Only original previously not published in any media (including scientific and other journals and electronic sites) papers can be accepted.

Is not permitted without quoting verbatim quotes from any other sources (plagiarism), as well as from the own sources (self-plagiarism), allowed the publication of previously published illustrations and equations, if it is needed to understand of the text. Illustrations from foreign sources should be provided with links to these sources.

The article should contain new scientific results and correspond to the topics of the juornal.

Illustration can be black and white or color (preferably).

Papers must contain the summary and key words, literature references, necessary for the understanding of the article and / or identifying the sources of citation.

Submitted articles are subject to internal anonymous review. The Editorial Board has the right to reject an article from the publication, indicating the reasons for this rejection or offer to modify an article on the reviewers' comments.

The responsibility for avoiding plagiarism, for the scientific content of the articles and for the quality of the English translation is on the author(s) of publication.

Russian authors should send before the final publication of an article scan file an expert opinion about the possibility of open publication of the article in its final form. The paper version of this document can be sent later.

All questions about the publication can be specified by e-mail.

Articles written in co-authorship of full members of the RAS or RANS, as well as articles, accompanied by a positive review of full members of the RAS or RANS (hard copy with original signature, certified at the place of work should be sent by e-mail) may be published under the accelerated procedure reviewing. This does not prevent the proposal for the editorial revision and / or on the best way of illustrative material.

Language of publication

Scientific Journal “Automation & Software Enginery” (A&SE) is published in two languages: Russian and English, or in English only (for the papers of foreing authors).

Paper in English is sufficient for any author, but for Russian author paper in Russian is desirable too. So, we invite Russian authors to send us to e-mail of chief editor oao_nips@bk.ru your manuscripts for publication in the format of Word-2003 in two languages. It is allowed to send manuscripts in one language only (Russian or English) with the mandatory provision of the final version in English at least. We insist in sending of the information about the name, information about the author positions, abstracts and keywords in English at least. Signature in the illustrations should be made also in two languages, or only in English.

In the case of the provision from the authors of only one language version, publication in another language is not guaranteed. In this case, at the disision of editors only brief information (abstract,

keywords, abstract) can be published.

It is desirable to specify the index of the UDC and (or) MKI.

It is admitted for English-speaking authors that their manuscripts would be given in English only. In this case, the editing board can deside publishing of the English version only or to provide the translation of the paper to Russian.

Text Formatting

We ask sending articles are Word (* .doc, *.docx), as well as copies of articles in the format * .pdf to avoid distortions of formulas and drawings (for control).

We ask that you use the page format: A4, book, text in two columns, font Times New Roman, the style “normal”, size 10 pt, single-spaced, the title - in one column 24 pt font, references 8 or 9 pt. Margins: left 3 cm, right 2 cm, top and bottom - 2 cm, pagination not to do. Information about the authors please place in the end of the paper, it is desired color photo (portrait), a width of not more than 3 cm, a height of not more than 4 cm. It is necessary to specify e-mail addresses of all authors. If some of the authors do not have e-mail, you must specify one that is desirable for correspondence. The list of authors on the first page includes only names and family names and place of work, the city, for foreign authors and country of residence.

About the section “Discussions & Forum”

In the section “Discussion & Forum” papers can be accepted which initiate discussions on topical issues in the mainstream topics of the magazine “A&SE”.

Papers in this section are not subject to rigorous scientific review, namely, the presence of both positive and negative comments, or if the authors views is not the same as the editing board view. Such papers can be published in this section for the discussion. The Editorial Board welcomes the scientific debate supporters differing views in order to develop theories. The Editorial Board encourages readers to send feedback to articles published in the “Discussions & Forum”. Selected responses to the papers under this section as well as good motivated responses to other articles in the journal “A&SE”" will be published in this section (in reduced or in the full reduction).

ISSN 2312-4997