

<p>ATMTKA 925</p> <p style="text-align: right;">UDK 621.313.13 IFAC IA 4.6.1</p> <p style="text-align: center;">Izvorni znanstveni članak</p> <p style="text-align: center;">AUTOMATIKA 43(3–4),109–117(2002)</p> <p style="text-align: center;">PRORAČUN STATIČKIH, KVAZISTATIČKIH I DINAMIČKIH KARAKTERISTIKA PREKIDAČKO-RELUKTANTNOG MOTORA</p> <p><i>Dr Šemsudin Mašić, Department of Electrical Machines and Drives, Faculty of Electrical Engineering on Sarajevo, Zmaja od Bosne bb, 71000 Sarajevo, Bosna and Hercegovina, E-mail: smasic@utic.net.ba</i></p> <p><i>Dr Jasmin Čorda, Senior Lecturer and Mechatronic Course Tutor, Department of Electronic and Electrical Engineering, University of Leeds, Leeds LS2 9JT, E-mail: j.corda@elec-eng.leeds.ac.uk</i></p> <p><i>Senad Smaka, Department of Electrical Machines and Drives, Faculty of Electrical Engineering in Sarajevo, Zmaja od Bosne bb, 71000 Sarajevo, Bosna and Hercegovina, E-mail: smaka@utic.net.ba</i></p> <p>Rad opisuje postupke proračuna statičkih karakteristika (ulančeni tok, magnetska koenergija i moment), kvazistatičkih karakteristika (brzina i moment) i dinamičkih karakteristika (brzina, struja i moment) prekidačko-reluktantnog motora. Raspodjela magnetskog vektor potencijala na poprečnom presjeku motora računata je metodom konačnih elemenata. Ulančeni tok, induktivnost, magnetska koenergija i statički moment računati su za različite pozicije rotora i struje statora. Kvizizatičke i dinamičke karakteristike su računane pomoću posebno razvijenih programa u programskim jezicima Fortran 77 i Matlab/Simulink. Svi proračuni provedeni su za prekidačko-reluktantni motor sa 8 polova statora i 6 polova rotora. Rezultati proračuna su potvrđeni eksperimentom.</p> <p><i>(Sl. 26, Lit. 10 – original na engleskom)</i></p> <p style="text-align: right;"><i>Autori</i></p> <p><i>prekidačko-reluktantni motor karakteristike modeliranje</i></p> <p style="text-align: right;">ISSN 0005–1144 ATKAAF 43(3–4),109–117(2002)</p>			<p>ATMTKA 926</p> <p style="text-align: right;">UDK 62-526 004.896</p> <p style="text-align: right;">IFAC IA 5.9.3;4.6.2</p> <p style="text-align: right;">Prethodno priopćenje</p> <p style="text-align: center;">AUTOMATIKA 43(3–4),119–129(2002)</p> <p style="text-align: center;">NEIZRAZITO ADAPTIVNO UPRAVLJANJE SILOM DODIRA SLIJEDNIH MEHANIZAMA S JEDNIM STUPNJEM SLOBODE GIBANJA</p> <p style="text-align: center;"><i>Doc. dr. sc. Stjepan Bogdan</i></p> <p><i>Sveučilište u Zagrebu, Fakultet elektrotehnike i računarstva, Unska 3, 10000 Zagreb</i> <i>E-mail: stjepan.bogdan@fer.hr, URL: http://aus-www.rasip.fer.hr/bogdan/index.html</i></p> <p style="text-align: center;"><i>Prof. dr. sc. Zdenko Kovačić</i></p> <p><i>Sveučilište u Zagrebu, Fakultet elektrotehnike i računarstva, Unska 3, 10000 Zagreb</i> <i>E-mail: zdenko.kovacic@fer.hr, URL: http://aus-www.rasip.fer.hr/kovacic/index.html</i></p> <p>Članak prikazuje upravljanje položajem/silom dodira slijednog mehanizma s jednim stupnjem slobode gibanja korištenjem neizrazitog adaptivnog sustava upravljanja silom. Predložena shema upravljanja silom dodira sadrži adaptivni neizraziti regulator sile i podređeni neizraziti regulator brzine vrtnje. Koristeći referentni model drugog reda, neizraziti na modelu zasnovani adaptacijski mehanizam u stanju je držati razliku između odziva modela i odziva sustava u zadanim granicama. Rezultati dobiveni numeričkim simulacijama pokazuju stabilno vladanje sustava upravljanja silom dodira za široki raspon varijacija krutosti okoline. Predložena metoda adaptivnog upravljanja silom se pokazala uspješnom i u slučaju dodira s neravnom površinom ili s radnim predmetom složena oblika.</p> <p><i>(Sl. 24, Tab. 1, Lit. 25 – original na engleskom)</i></p> <p style="text-align: right;"><i>Autori</i></p> <p><i>upravljanje položajem/silom neizraziti algoritmi upravljanja adaptivno upravljanje</i></p> <p style="text-align: right;">ISSN 0005–1144 ATKAAF 43(3–4),119–129(2002)</p>
<p>ATMTKA 927</p> <p style="text-align: right;">UDK 62-526 004.896</p> <p style="text-align: right;">IFAC IA 5.9.3;2.5</p> <p style="text-align: right;">Prethodno priopćenje</p> <p style="text-align: center;">AUTOMATIKA 43(3–4),131–137(2002)</p> <p style="text-align: center;">PLANIRANJE GIBANJA ROBOTA METODOM OGRANIČENOG PROSTORA</p> <p><i>Prof. Mladen Crneković, Ph. D.; Assoc. prof. Davor Zorc, Ph. D.; Assoc. prof. Dubravko Majetić, Ph. D. Faculty of Mechanical Engineering and Naval Architecture, Ivana Lučića 1, 10000 Zagreb, CROATIA</i></p> <p>Planiranje gibanja robota u višedimenzijском prostoru zahtijeva veliki model i traje predugo, te stoga nije pogodno za procese u realnom vremenu. Metoda ograničenog prostora (LSM), korištena u ovom radu, umjesto da traži optimalnu putanju gibanja (u matematičkom smislu), istražuje 3D realni fizički prostor (dvije translacije i jedna rotacija) i pronalazi logičnu putanju robota (logičnu u smislu čovjekovog rješenja istog problema). Njezina osnovna prednost je mali model i brzo rješenje. Iako metoda ograničenog prostora nije sveobuhvatna kao npr. metoda konfiguracijskog prostora, ona pokazuje dobru primjenjivost za inženjerske potrebe.</p> <p><i>(Sl. 9, Lit. 13 – original na engleskom)</i></p> <p style="text-align: right;"><i>Autori</i></p> <p><i>detekcija sudara planiranje gibanja izbjegavanje prepreka metoda ograničenog prostora</i></p> <p style="text-align: right;">ISSN 0005–1144 ATKAAF 43(3–4),131–137(2002)</p>			<p>ATMTKA 928</p> <p style="text-align: right;">UDK 621.375.826 IFAC IA 5.8.6</p> <p style="text-align: right;">Izvorni znanstveni članak</p> <p style="text-align: center;">AUTOMATIKA 43(3–4),139–143(2002)</p> <p style="text-align: center;">FOTONSKO-MIKROVALNA KONVERZIJA U POLUVODIČIMA KONTROLOM VALA NOSIOCA U OPTIČKOM PODRUČJU</p> <p style="text-align: center;"><i>Masayoshi Tonouchi</i></p> <p><i>Research Center for Superconductor Photonics, Osaka University and CREST-JST</i> <i>2-1 Yamadaoka, Suita, Osaka 565-0871, Japan</i> <i>tonouchi@rcsuper.osaka-u.ac.jp</i></p> <p>Proučavana je dinamika ultrabrzog nosioca u optički pobuđenim poluvodičima promatranjem generiranja zraka u THz području. Razvijen je sustav za generiranje THz zrake pumpe i probe s temperaturnom kontrolom varijabilnim uzorkom. Sustav je korišten za ispitivanje procesa raspršenja ultrabrzog nosioca. Rezultati ukazuju na činjenicu da je generiranje THz zraka, a posebno metoda pumpe i probe, snažan alat za proučavanje ultrabrzih pojava. Predloženi je novi model za objašnjenje dinamike ultrabrzog nosioca, upravo nakon upada fotona GaAs dobiven pomoću niskotemperaturnog procesa. Model sadrži proces raspršenja među energetskim pojasevima.</p> <p><i>(Sl. 6, Lit. 9 – original na engleskom)</i></p> <p style="text-align: right;"><i>Autor</i></p> <p><i>femtosekundni laser zračenje u terahercnom području dinamika ultrabrzih nosilaca GaAs dobiven pomoću niskotemperaturnog procesa emisija vala pumpe i probe u terahercnom području</i></p> <p style="text-align: right;">ISSN 0005–1144 ATKAAF 43(3–4),139–143(2002)</p>

<p>ATMTKA 926</p> <p style="text-align: right;">UDK 62-526 004.896 IFAC IA 5.9.3;4.6.2 Preliminary communication</p> <p style="text-align: center;">AUTOMATIKA 43(3-4),119-129(2002) FUZZY RULE-BASED ADAPTIVE FORCE CONTROL OF SINGLE DOF SERVO MECHANISMS <i>Doc. dr. sc. Sijepan Bogdan</i> <i>Sveučilište u Zagrebu, Fakultet elektrotehnike i računarstva, Unska 3, 10000 Zagreb</i> <i>E-mail: stjepan.bogdan@fer.hr, URL: http://aus-www.rasip.fer.hr/bogdan/index.html</i> <i>Prof. dr. sc. Zdenko Kovačić</i> <i>Sveučilište u Zagrebu, Fakultet elektrotehnike i računarstva, Unska 3, 10000 Zagreb</i> <i>E-mail: zdenko.kovacic@fer.hr, URL: http://aus-www.rasip.fer.hr/kovacic/index.html</i></p> <p>The paper presents position/force control with a completely fuzzified adaptive force control system for the single degree of freedom servo mechanisms. The proposed force control scheme contains an adaptive fuzzy force controller and a subordinated fuzzy velocity controller. By using a second-order reference model, a model reference-based fuzzy adaptation mechanism is able to keep the error between the model and system output responses within desired limits. The results obtained by computer simulations indicate a stable performance of the force control system for a wide range of environment stiffness variations. The proposed adaptive force control method has also been effective in case of a contact with a rough surface or a complex form workpiece <i>(Fig. 24, Tab. 1, Ref. 25 – original in English)</i></p> <p style="text-align: right;"><i>Authors</i></p> <p><i>force/position control</i> <i>fuzzy logic control algorithms</i> <i>adaptive control</i></p> <p style="text-align: right;">ISSN 0005-1144 ATKAAF 43(3-4),119-129(2002)</p>			<p>ATMTKA 925</p> <p style="text-align: right;">UDK 621.313.13 IFAC IA 4.6.1 Original scientific paper</p> <p style="text-align: center;">AUTOMATIKA 43(3-4),109-117(2002) COMPUTATION OF STATIC, STEADY-STATE AND DYNAMIC CHARACTERISTICS OF THE SWITCHED RELUCTANCE MOTOR <i>Dr Šemsudin Mašić, Department of Electrical Machines and Drives, Faculty of Electrical Engineering on Sarajevo, Zmaja od Bosne bb, 71000 Sarajevo, Bosna and Hercegovina, E-mail: smasic@utic.net.ba</i> <i>Dr Jasmin Čorda, Senior Lecturer and Mechatronic Course Tutor, Department of Electronic and Electrical Engineering, University of Leeds, Leeds LS2 9JT, E-mail: j.corda@elec-eng.leeds.ac.uk</i> <i>Senad Smaka, Department of Electrical Machines and Drives, Faculty of Electrical Engineering in Sarajevo, Zmaja od Bosne bb, 71000 Sarajevo, Bosna and Hercegovina, E-mail: smaka@utic.net.ba</i></p> <p>This paper gives an overview of the procedures of determination of static characteristics (flux linkage, magnetic coenergy and torque), steady state characteristics (current and torque) and dynamic characteristics (speed, current and torque) of switched reluctance motor. A two dimensional distribution of magnetic vector potential inside a motor is computed using finite element method. The flux linkage, magnetic coenergy and static torque are calculated for different rotor positions and stator currents. Steady-state and dynamic characteristics are calculated using specially developed software routines. All calculations are realized for switched reluctance motor with 8 stator and 6 rotor poles. Numerically obtained results are verified by experiment. <i>(Fig. 26, Ref. 10 – original in English)</i></p> <p style="text-align: right;"><i>Authors</i></p> <p><i>switched reluctance motor</i> <i>characteristics</i> <i>modelling</i></p> <p style="text-align: right;">ISSN 0005-1144 ATKAAF 43(3-4),109-117(2002)</p>
<p>ATMTKA 928</p> <p style="text-align: right;">UDK 621.375.826 IFAC IA 5.8.6 Original scientific paper</p> <p style="text-align: center;">AUTOMATIKA 43(3-4),139-143(2002) PHOTON-MICROWAVE CONVERSION IN SEMICONDUCTORS BY OPTICAL CARRIER CONTROL <i>Masayoshi Tonouchi</i> <i>Research Center for Superconductor Photonics, Osaka University and CREST-JST</i> <i>2-1 Yamadaoka, Suita, Osaka 565-0871, Japan</i> <i>tonouchi@rcsuper.osaka-u.ac.jp</i></p> <p>The ultrafast carrier dynamics in the optically excited semiconductors is studied by observing the THz radiation. We developed the pump and probe THz beam generation system with variable sample temperature control, and employed it to examine the ultrafast carrier scattering processes. The results proved that the THz beam generation, especially pump and probe method, is a powerful tool to study the ultrafast phenomena. We propose the new model to explain the ultrafast carrier dynamics just after photon arrivals in low-temperature-grown GaAs, which includes the intervalley scattering process. <i>(Fig. 6, Ref. 9 – original in English)</i></p> <p style="text-align: right;"><i>Author</i></p> <p><i>femtoseconds laser</i> <i>terahertz radiation</i> <i>ultrafast carrier dynamics</i> <i>low-temperature-grown GaAs</i> <i>pump and probe terahertz emission</i></p> <p style="text-align: right;">ISSN 0005-1144 ATKAAF 43(3-4),139-143(2002)</p>			<p>ATMTKA 927</p> <p style="text-align: right;">UDK 62-526 004.896 IFAC IA 5.9.3;2.5 Preliminary communication</p> <p style="text-align: center;">AUTOMATIKA 43(3-4),131-137(2002) ROBOT MOTION PLANNING BY LIMITED SPACE METHOD <i>Prof. Mladen Crneković, Ph. D.; Assoc. prof. Davor Zorc, Ph. D.; Assoc. prof. Dubravko Majetić, Ph. D.</i> <i>Faculty of Mechanical Engineering and Naval Architecture, Ivana Lučića 1, 10000 Zagreb, CROATIA</i></p> <p>Robot motion planning in multidimensional space is very time-consuming and requires a big model; therefore, it is not very suitable for a real-time purpose. Limited space method (LSM) used here works with 3D real physical space (two translations and one rotation) and finds out a logical path (in the sense of the human solution faced with the same problem), rather than the optimal path (in the mathematical sense). Its main advantages are small model and short solution time. Although LSM is not as universal as the C-space, it has good potentiality for engineering applications. <i>(Fig. 9, Ref. 13 – original in English)</i></p> <p style="text-align: right;"><i>Authors</i></p> <p><i>collision detection</i> <i>motion planning</i> <i>obstacle avoidance</i> <i>limited space method</i></p> <p style="text-align: right;">ISSN 0005-1144 ATKAAF 43(3-4),131-137(2002)</p>

<p>ATMTKA 929</p> <p>UDK 621.396.67 IFAC IA 5.8.3 Pregledni članak</p> <p>AUTOMATIKA 43(3–4),145–150(2002) RAZVOJ ANTENSKIH NIZOVA NA NAPUHAVANJE <i>John Huang, Principal Engineer, Ph. D. Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 91109 USA Tel: +1 (818) 354-3586; E-mail: john.huang@jpl.nasa.gov</i></p> <p>Antenski su nizovi na napuhavanje razvijeni da bi se značajno smanjila masa, zapremina skladišnog prostora i cijena budućih svemirskih letjelica. Tri su nova antenska sustava na napuhavanje razvijena za primjenu na svemirskim letjelicama: antenski niz izmjera 3,3 m × 1,0 m za radar sa sintetičkom antenom (SAR) u području frekvencija L, refleksijski niz promjera 1 m u frekvencijskom području X za telekomunikacijske primjene i refleksijski niz promjera 3 m u frekvencijskom području Ka, također za telekomunikacijske primjene. Sve su tri antene slične po izvedbi. Sve se tri sastoje od čjevaste strukture koja se napuhava te podržava i napinje višeslojnu tanku zračecu površinu s mikrotrakastim antenama. Ove su antene pokazale da su antenski nizovi na napuhavanje primjenjivi u cijelom mikrovalnom i milimetarskom valnom području. Smatra se da je potrebno daljnje unapređenje ovih antena posebno u području prilagodbe primjeni u svemirskim uvjetima.</p> <p>(Sl. 9, Lit. 7 – original na engleskom)</p> <p><i>Autor</i></p> <p>antene strukture na napuhavanje planarni nizovi refleksijski nizovi svemirska letjelica</p> <p>ISSN 0005–1144 ATKAAF 43(3–4),145–150(2002)</p>			<p>ATMTKA 930</p> <p>UDK 621.396.97 IFAC IA 5.8.3 Izvorni znanstveni članak</p> <p>AUTOMATIKA 43(3–4),151–156(2002) NIZOVI AKTIVNIH ANTENA S TRANSFORMATOROM IMPEDANCIJE I TRANZISTORSKIM OSCILATOROM SPREGNUTI U RAVNINAMA E I H <i>Doc. dr. sc. Davor Bonefačić, dipl. ing.; Prof. dr. sc. Juraj Bartolić, dipl. ing. University of Zagreb, Faculty of Electrical Engineering and Computing Department of Radiocommunications and Microwave Engineering, Unska 3, HR-10000 Zagreb, CROATIA e-mail: davor.bonefacic@fer.hr, e-mail: juraj.bartolic@fer.hr</i></p> <p>Mikrotrakasta <i>patch</i> antena unutar koje je ugrađen tranzistorski oscilator i linijski transformator impedancije osnovni je element antenskih nizova za prostorno slaganje snage koji su prikazani u ovom radu. Projektirani su i pokusima ispitani antenski nizovi od dva elementa. Elementi su jednom spregnuti u ravnini E, a drugi puta u ravnini H. Udaljenost između elemenata antenskih nizova je optimizirana tako da bi se postigao željeni koeficijent sprege i međusobna sinkronizacija. Mjerenjima je utvrđena visoka razina zračenog snage i iznimno dobra djelotvornost prostornog slaganja snage. Pokusima je potvrđen stabilan rad oba antenska niza i izmjeren je čist spektar. Prikazana je i mogućnost električnog zakretanja glavnog snopa zračenja. Izmjereni su dijagrami zračenja osnovne i križne polarizacije za oba niza u slučaju zračenja okomito na os niza kao i u oba zakrenuta položaja glavnog snopa zračenja. Mjerenja su pokazala niske razine križne polarizacije.</p> <p>(Sl. 9, Lit. 11 – original na engleskom)</p> <p><i>Autori</i></p> <p>antena aktivna antena mikrotrakasta antena antenski niz prostorno slaganje snage sinkronizacija</p> <p>ISSN 0005–1144 ATKAAF 43(3–4),151–156(2002)</p>
<p>ATMTKA 931</p> <p>UDK 621.396.97 IFAC IA 5.8.3 Izvorni znanstveni članak</p> <p>AUTOMATIKA 43(3–4),157–161(2002) SINTEZA NEUSMJERENE CILINDRIČNE MIKROTRAKASTE ANTENE S PARAZITSKIM REZONATOROM <i>Radovan Zentner, PhD, Assistant; Zvonimir Šipuš, PhD, Assistant Professor Faculty of Electrical Engineering and Computing, University of Zagreb, Unska 3, 10000 Zagreb, Croatia e-mail: radovan.zentner@fer.hr, e-mail: zvonimir.sipus@fer.hr</i> <i>Naftali Herscovici, PhD anTeg, Inc., Framingham, MA, USA, e-mail: tuli@ieec.org</i></p> <p>Prikazana je neusmjerena mikrotrakasta antena s parazitskim rezonatorom, izvedena na višeslojnoj cilindričnoj strukturi. Upotrijebljen je numerički simulator povezan s optimizacijskim algoritmom, kako bi se ostvarilo dobro prilagođenje i neusmjeren dijagram zračenja u azimutalnoj ravnini. Antena je izrađena, te su na njoj provedena mjerenja dobitka i dijagrama zračenja. Izmjereni dijagram zračenja ima valovitost od 4 dB, što pokazuje opravdanost rabljenja mikrotrakaste antene s parazitskim rezonatorom na višeslojnoj cilindričnoj strukturi za postizanje neusmjerene dijagrama zračenja.</p> <p>(Sl. 5, Tab. 2, Lit. 6 – original na engleskom)</p> <p><i>Autori</i></p> <p>antene metoda momenata mikrotrakaste antene</p> <p>ISSN 0005–1144 ATKAAF 43(3–4),157–161(2002)</p>			<p>ATMTKA 932</p> <p>UDK 621.3.013 IFAC IA 6.8:5.8 Stručni članak</p> <p>AUTOMATIKA 43(3–4),163–168(2002) MULTIMEDIJSKI UDŽBENIK O TEORIJI I PRIMJENI ELEKTROMAGNETIZMA <i>Zbyn k Raida, Dušan Černohorský, Zbyn k Škvor, Zden k Nováček, Stanislav Go a, Vlastimil Navrátil, Petr Pom nka, Tomáš Urbanec, Václav Michálek, Geert Vanderstegen, Bart Vándijck, Viktor Oveřtel Dept. of Radio Electronics, Brno University of Technology, Purky ova 118, 612 00 BRNO, Czech Republic Phone: +420 541 149 114, Fax: +420 541 149 244, E-mail: raida@feec.vutbr.cz</i></p> <p>Podučavanje sveučilišnih kolegija koji se bave fenomenima elektromagnetizma prilično je zahtjevno zbog apstraktnosti gradiva koje se iznosi. Podučavanje stoga valja popratiti jasnim objašnjenjima i simulacijama koje ilustriraju teme koje se obrađuju. Upravo je zato priređen multimedijški udžbenik koji donosi teorijski opis elektromagnetskih fenomena i istodobno omogućava njihovo simuliranje. Struktura udžbenika je dvodimenzionalna što omogućava njegovu primjenu na dodiplomskom i poslijediplomskom studiju korištenjem gotovih programa koji su dio udžbenika ili izradbom vlastitih programa od strane korisnika. Udžbenik je opremljen sustavom kazala s objašnjenjima, što olakšava korištenje i čitateljima koji ne poznaju područje.</p> <p>(Sl. 3, Lit. 12 – original na engleskom)</p> <p><i>Autori</i></p> <p>antena elektromagnetizam frekvencijski selektivne površine mikrovalne prijenosne linije multimedijški udžbenik optoelektronika</p> <p>ISSN 0005–1144 ATKAAF 43(3–4),163–168(2002)</p>

<p>ATMTKA 930</p> <p>UDK 621.396.97 IFAC IA 5.8.3 Original scientific paper</p> <p>AUTOMATIKA 43(3-4),151-156(2002)</p> <p>E- AND H-PLANE COUPLED POWER COMBINING ARRAYS OF ACTIVE PATCHES WITH LINE TRANSFORMER AND TRANSISTOR OSCILLATOR</p> <p><i>Doc. dr. sc. Davor Bonefačić, dipl. ing.; Prof. dr. sc. Juraj Bartolić, dipl. ing. University of Zagreb, Faculty of Electrical Engineering and Computing Department of Radiocommunications and Microwave Engineering, Unska 3, HR-10000 Zagreb, CROATIA e-mail: davor.bonefacic@fer.hr, e-mail: juraj.bartolic@fer.hr</i></p> <p>A patch antenna integrated with a transistor oscillator and a line impedance transformer has been used as a building element for two-element power combining arrays. Arrays coupled in E and H planes have been theoretically and experimentally investigated. The inter-element distance in the arrays has been optimized to obtain in-phase operation and mutual injection locking. High EIRP and excellent power combining efficiency are measured. The measured spectra are clean and stable. Electronic beam scanning is demonstrated. The co-polarization and cross-polarization radiation patterns are measured for the case of broadside radiation and scanned positions of the main beam. The cross-polarization levels are low.</p> <p>(Fig. 9, Ref. 11 – original in English)</p> <p><i>Authors</i></p> <p>antenna active antenna microstrip antenna antenna array spatial power combining injection locking</p> <p>ISSN 0005-1144 ATKAAF 43(3-4),151-156(2002)</p>	<p>ATMTKA 929</p> <p>UDK 621.396.67 IFAC IA 5.8.3 Review</p> <p>AUTOMATIKA 43(3-4),145-150(2002)</p> <p>THE DEVELOPMENT OF INFLATABLE ARRAY ANTENNAS</p> <p><i>John Huang, Principal Engineer, Ph. D. Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 91109 USA Tel: +1 (818) 354-3586; E-mail: john.huang@jpl.nasa.gov</i></p> <p>Inflatable array antennas are being developed to significantly reduce the mass, the launch vehicle's stowage volume, and the cost of future spacecraft systems. Three inflatable array antennas, recently developed for spacecraft applications, are a 3.3 m × 1.0 m L-band synthetic aperture radar (SAR) array, a 1.0 m-diameter X-band telecom reflectarray, and a 3 m-diameter Ka-band telecom reflectarray. All three antennas are similar in construction, and each consists of an inflatable tubular frame that supports and tensions a multi-layer thin-membrane radiating surface with printed microstrip patches. These antennas demonstrated that inflatable arrays are feasible across the microwave and millimeter-wave spectrums. Further developments of these antennas are deemed necessary, in particular, in the area of qualifying the inflatable structures for space-environment usage.</p> <p>(Fig. 9, Ref. 7 – original in English)</p> <p><i>Author</i></p> <p>antennas inflatable structure planar arrays reflectarray spacecraft</p> <p>ISSN 0005-1144 ATKAAF 43(3-4),145-150(2002)</p>
<p>ATMTKA 932</p> <p>UDK 621.3.013 IFAC IA 6.8;5.8 Professional paper</p> <p>AUTOMATIKA 43(3-4),163-168(2002)</p> <p>A MULTIMEDIA TEXTBOOK OF EM THEORY AND TECHNIQUES</p> <p><i>Zbyn k Raida, Dušan Černohorský, Zbyn k Škvor, Zden k Nováček, Stanislav Go a, Vlastimil Navrátil, Petr Pom nka, Tomáš Urbanec, Václav Michálek, Geert Vanderstegen, Bart Vandijck, Viktor Otevčel Dept. of Radio Electronics, Brno University of Technology, Purky ova 118, 612 00 BRNO, Czech Republic Phone: +420 541 149 114, Fax: +420 541 149 244, E-mail: raida@feec.vutbr.cz</i></p> <p>Teaching university courses, which deal with the phenomena of electromagnetic nature and their application, is rather difficult due to their abstract nature. Therefore, the teaching has to be accompanied by clear explanation, and by simulation illustrating the examined topics. That is why a multimedia textbook was developed, which presents the theoretical description of electromagnetic phenomena, and at the same time, enables to simulate them.</p> <p>The textbook is of a two-dimensional structure, which enables the book to be used by bachelor's students and master's ones for studying, by users of incorporated programs for guiding, and by programmers for developing their own applications. The textbook is completed by an explanatory indexing mechanism, which makes the book readable even for an inexperienced reader.</p> <p>(Fig. 3, Ref. 12 – original in English)</p> <p><i>Authors</i></p> <p>antennas electromagnetic phenomena frequency selective surfaces microwave transmission lines multimedia textbook optoelectronics</p> <p>ISSN 0005-1144 ATKAAF 43(3-4),163-168(2002)</p>	<p>ATMTKA 931</p> <p>UDK 621.396.97 IFAC IA 5.8.3 Original scientific paper</p> <p>AUTOMATIKA 43(3-4),157-161(2002)</p> <p>SYNTHESIS OF OMNIDIRECTIONAL CIRCULAR CYLINDRICAL STACKED PATCH ANTENNA</p> <p><i>Radovan Zentner, PhD, Assistant; Zvonimir Šipuš, PhD, Assistant Professor Faculty of Electrical Engineering and Computing, University of Zagreb, Unska 3, 10000 Zagreb, Croatia e-mail: radovan.zentner@fer.hr, e-mail: zvonimir.sipus@fer.hr Naftali Herscovici, PhD anTeg, Inc., Framingham, MA, USA, e-mail: tuli@ieee.org</i></p> <p>The stacked conformal omnidirectional patch antenna, manufactured on cylindrical multilayered structure is presented. In order to obtain good wideband matching as well as omnidirectional azimuthal radiation pattern, the numerical simulation is used in conjunction with optimization procedure. The antenna was built and its gain and radiation pattern were measured. These measurements, including the measured radiation pattern with 4 dB omnidirectionality approved the idea of applying stacked patch configuration for wideband operation of circular cylindrical patch antennas.</p> <p>(Fig. 5, Tab. 2, Ref. 6 – original in English)</p> <p><i>Authors</i></p> <p>antennas method of moments microstrip antennas</p> <p>ISSN 0005-1144 ATKAAF 43(3-4),157-161(2002)</p>