Cercetari stiintifice intreprinse

1. Cuzmin C., Frumusanu G., Marin F.B., Paunoiu V., Cuzmin G., Epureanu A., ***Adaptive Dimensional Control System for Reconfigurable Machine-Tools.***, Vol. 1, Universitatea Tehnică a Moldovei, ISBN 978-9975-45-035-1, TCMR International Conference, Chisinau, 2007.

Abstract:

The paper is presenting a method for online identification of the dimensional dynamics to be used for dimensional control of reconfigurable machining systems. The dimensional control is a key action in order to achieve quality desired for finite product. As diminishing deviation is accompanied with high costs: deviation compensation seem to be a better control of the process.

2. Cuzmin C., Teodor V., Oancea N., Marinescu V., Epureanu A., ***Dimensional dynamics identification of reconfigurable machine tools.*** Proceedings of WSEAS European Computing Conference, Athens, GREECE, September 25-27, 2007, (indexata **ISI**).

Abstract*:*

The paper presents a new method for online identification of the dimensional dynamics to be used for the dimensional control of reconfigurable machining systems. The dimensional control is designed as adaptive and predictive.

The dimensional control of the reconfigurable machining system is a key action in order to achieve the quality desired for the finite product. As a diminishing deviation presents the disadvantage that reducing deviations are accompanied by high costs, the deviation compensation implies a better control of the process.

The deviation compensation emerged during the working process requires knowledge of a model which describes the dimensional dynamics of the machine tool, which is the relation between the dimensional changing of the processed part and the parameters of the process. On the other hand the behavior of the machining system evolution changes significantly in time even during the processing of a small number of parts processed. This is the reason that dimensional dynamics must reveal the changing in time of the relation between dimensional variation of the parts and the process parameters.

Keywords: reconfigurable machine tools, online identification, dimensional dynamics, dimensional control.

3. Epureanu A., Teodor V. ,***On-Line Geometrical Identification of Reconfigurable Machine Tool using Virtual Machining***, Publicată în revista Enformatica, vol. 15, SPANIA, 2006, ISBN 975-00803-4-3, (indexata **BDI**).

Abstract:

One of the main research directions in CAD/CAM machining area is the reducing of machining time. The feedrate scheduling is one of the advanced techniques that allows keeping constant the uncut chip area and as sequel to keep constant the main cutting force. They are two main ways for federate optimization. The first consists in the cutting force monitoring, which presumes to use complex equipment for the force measurement and after this, to set the feedrate regarding the cutting force variation. The second way is to optimize the feedrate by keeping constant the material removal rate regarding the cutting conditions. In this paper there is proposed a new approach using an extended database that replaces the system model. The feedrate scheduling is determined based on the identification of the reconfigurable machine tool, and the feed value determination regarding the uncut chip section area, the contact length between tool and blank and also regarding the geometrical roughness. The first stage consists in the blank and tool monitoring for the determination of actual profiles. The next stage is the determination of programmed tool path that allows obtaining the piece target profile. The graphic representation environment models the tool and blank regions and, after this, the tool model is positioned regarding the blank model according to the programmed tool path. For each of these positions the geometrical roughness value, the uncut chip area and the contact length between tool and blank are calculated. Each of these parameters are compared with the admissible values and according to the result the feed value is established. We can consider that this approach has the

following advantages: in case of complex cutting processes the prediction of cutting force is possible; there is considered the real cutting profile which has deviations from the theoretical profile; the blank-tool contact length limitation is possible; it is possible to correct the programmed tool path so that the target profile can be obtained. Applying this method, there are obtained data sets which allow the feedrate scheduling so that the uncut chip area is constant and, as a result, the cutting force is constant, which allows to use more efficiently the machine tool and to obtain the reduction of machining time.

Keywords: reconfigurable machine tool, system identification, uncut chip area, cutting conditions scheduling.

4. Frumusanu G., Epureanu A**.** – ***Approach of Cutting Processes Chaotic Character by Using Cutting Force Poincare Map*** - Buletinul Institutului Politehnic din Iasi, Tomul LIII (LVII), 2007, în curs de publicare.

Abstract:

The potential chaotic character of cutting processes was already confirmed by calculated values of Lyapunov exponent in the case of time series including cutting force values during manufacturing by turning. To consolidate this assumption, other instruments offered by Chaos Theory are available; among them, Poinace map is a significant one. In this paper are presented Poincare map type diagrams, drawn based on time series including cutting force values during manufacturing by turning, by using a dedicated soft; a comparison between them and chaotic phenomena phase portraits existing in dedicated literature is also made.

Keywords: cutting force, Poincare map, time series, cutting process.

5. Constantin I., Marinescu V., Epureanu A., Cuzmin C., Marin F. B., ***A modular manufacturing control system***, TCMR International Conference, Chisinau, 2007, ISBN 978-9975-45-035-5, pag. 301-306.

Abstract:

This paper proposes a modular manufacturing system structure. The key. concept is to modularize the machines. the auxiliary equipment and finally the plant. In architecture, each module had a set of configuration parameters used by the main module of each sub-structure. The multi processor structure allows the production facility to adapt itself to the production task.

6. Frumusanu G., Epureanu A. – ***Modelling of Cutting Process Chaotic Character.*** - TCMR International Conference, Chisinau, 2007, p.342-345.

Abstract:

"Chaos Theory" application when analyzing and identifying cutting manufacturing processes could bring new and very interesting elements, with direct application in conceiving manufacturing systems with high performances. To reach this goal, first of all evaluation of a certain process chaotic character must become possible (and easy) to be done. This paper intends to suggest a method, by using a special dedicated soft and files including cutting force values (measured during a cutting test), as time series, to evaluate chaotic or non-chaotic character of analyzed process. Concrete samples are also included.

7. Frumusanu G. – ***Algorithm and Program to Find Largest Lyapunov Exponent in One-Dimensional Time Series Case.*** - TCMR International Conference, Chisinau, 2007, p.338-341.

Abstract:

During the last years, many researchers tried to apply "Chaos Theory" to explain phenomena from various domains, starting from medicine and weather prediction and going up to manufacturing by metal cutting. The main sign that characterizes the chaotic character of a certain process is "the largest Lyapunov exponent". To calculate it, more methods were already suggested, but this paper covers a less tackled field – time series case. Examples of application are presented and results quality is analyzed by comparing them to accepted reference cases.

8. Marin F. B., Constantin I. C., Marinescu V., Cuzmin C., Epureanu A., ***Development of reconfigurable software module for CNC machine tools***, TCMR International Conference, Chisinau, 2007, ISBN 978-9975-45-035-5, pag. 265-269.

Abstract:

After reconfiguration process the new hardware architecture implies also software architecture changing. Reconfigurable machine tools performance is determined most by ramp-up-time. O important part of this is the time needed for software reconfiguration. This paper presents a reconfigurable interpreter, developed as new software approach, which provide a fast software reconfiguration to be operated by the user of the machine. The interpreter design methodology and corresponding software presented in the paper was developed at the "Dunarea de Jos" University – Galati. Results achieved confirmed the efficiency of this approach.

Keywords: reconfigurable machine tools, open-architecture, interpreter, condition instructions set

9. Frumusanu G., ***Algorithm and Soft to Evaluate the Errors between Profiles Given through Points*** - Buletinul Institutului Politehnic din Iasi, Tomul LII (LVI), Fasc.5A, 2006, p.119-122, ISSN 1011-2855.

Abstract:

There are many situations when a cutting tool profile or a curve characterizing a surface generated by wrapping cannot be found by their analytical expressions; The solution is, after using specific numerical methods, to obtain the profile through a file of points co-ordinates. The paper suggests an algorithm to calculate with higher accuracy, the maximum distance between two curves, each one given by a file of points. Applications solved by an original dedicated soft are also included.

Keywords: profiles given through points, errors evaluation

10. Frumusanu G., ***The Influence of Reconstruction Delay and Embedding Dimension Values onto Time Series Lyapunov Exponents Calculation*** - Buletinul Institutului Politehnic din Iasi, Tomul LIII (LVII), 2007, în curs de publicare.

Abstract:

During the last years, many researchers tried to apply “Chaos Theory” to explain phenomena from various domains, including manufacturing by metal cutting. The main sign that characterizes the chaotic character of a certain process is “the largest Lyapunov exponent”. To calculate it, more methods were already suggested, but there are differences between results. By using an original dedicated soft, this paper tries to find the influence of specific parameters with effect onto time series Lyapunov exponents calculation (reconstruction delay, embedding dimension, etc) in the final results.

Keywords: largest Lyapunov exponent, time series, reconstruction delay, embedding dimension.

11. Constantin I., Marinescu V., Paunoiu V., Marin F.B., ***Corecția erorilor de poziționare pentru axele lungi ale maşinilor unelte cu angrenaj,*** TCMR International Conference, Chisinau, 2007, pag. 420-424, ISBN 978-9975-45-035-5.

Abstract:

The retrofitted machines used in steel construction industry for punching and drilling of the steel beams generally have problems with the positioning precision of the movement axes. The axis used for the longitudinal displacement of the profiles presents the largest position errors. This paper presents a practical method for compensating the position errors of this axis.

12. Cioca L., Breaz R.E., Racz G.S. ***Fuzzy Logic Tehniques used in Manufacturing Process Reengineering***, Proceedings of the 6th WSEAS International Conference on Simulation,

Modelling and Optimisation (SMO ’06), Lisbon, PORTUGAL, September 22-24, 2006, (indexata **BDI**).

13. Cioca L., Breaz R.E., Racz G.S., ***Multi-Criteria Decision Making Tehniques used in Manufacturing Processes Reengineering based upon Modelling and Simulation***, WSEAS Transaction on Systems,FRANTA, ISSN 1109-2777, (indexata **BDI**).

14. Racz G.S., Bologa O., Breaz R.E., ***Optimisation of the eccentric press structure***, WSEAS Transaction on Systems, FRANTA, ISSN 1109-2777, (indexata **BDI**).

15. Brabie G., Cristea I., Schnakovsky C., Chirita B., Gherghel M., ***Basic problems concerning the reconfiguration of manufacturing systems***, TSTM 12, Academia de Stiinte Tehnice, p/50-53, 2006.

16. Breaz R.E., Ciortea M.Z., ***Comparing PI digital and fuzzy PD Controllers for Mechatronic feed drives by means of simulation***, Acta Universitatis Cibiniensis Buletin Stintific al Universitatii din Sibiu, Seria Tehnica A, Machine Tools and Robots, Sibiu, 2006, ISSN 1221-4949, (indexata **BDI**).

17. Breaz R.E., Oleksik V., Bologa O., ***Studies Regarding the Feed Drive of a Specialised Machine Tool by Means of Dynamic Simulation***, Proceedings of the 15th International Conference on Manufacturing Systems – ICMaS 2006, Published by Editura Academiei Romane, Bucharest 26-27 October, 2006, ISSN 1842-3183.

18. Racz G., Girjob C. ***Dynamic Behaviour of The Mechanical Presses***, Proceeedings of the 15th International Conference on Manufacturing Systems – ICMaS2006, Published by Editura Academiei Romane, University POLITEHNICA of Bucharest, Machine and Manufacturing Systems Department, Bucharest, Romania, 26-27 October, 2006, ISSN 1842-3183.

19. Ciocan O., Ghiță E , ***Process and Tool for Machining of Small Size Spherical Surfaces***, Analele Universității “Dunărea de Jos” din Galați, Fasc. V., Tehnologii în construcția de mașini, anul XXIV(XXIX) 2006, ISSN-1221-4566, p. 76-79. (indexata **BDI**).

Abstract:

In the paper there are presented some peculiar items of manufacturing there duced-sized inner spherical surfaces. It is presented an original designed process of such type of the surfaces. There are underlined the characteristics of the presented process, the details of the tool used as well as the main advantages offered by them.

Keywords: tool, spherical surfaces.

20. Brabie G., Ene F., Chirita B., ***Configuration of the deep drawing tools based on an optimization system using neural network methods***, TSTM 12, Academia de Stiinte Tehnice, p. 66 -70, 2006.

21. Brabie G., Chirita B., ***Application of the neural network method in optimization of the drawing process of hemispherical parts made from metal sheets***, Archives of Civil and Mechanical Engineering, Polish Academy of Sciences, vol. VI, no. 2, 87-92, 2006, (indexata **BDI**).

22. Brabie G., ***Optimization system based on LMecA*** – Taguchi/Neural Network methods for the compensation of errors generated by springback in the case of drawparts made from metal sheets, Proc. of IDDRG 2006 Conf. Porto, 346-351.

23. Maier C., Kosmalski N., Banu M., Epureanu A., Paunoiu V., ***Design of the virtual model of re-drawing process ,*** Analele Universității “Dunărea de Jos” din Galați, Fasc. V., Tehnologii în construcția de mașini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

Abstract:

This paper deals with the develop the finite element modelization of the re-drawing process in order to create his virtual model. The finite element is a method that permits to reduce the time and the cost in the designing. Then in a second time a good finite element model permit to avoid or complement laboratory characterization of material for re drawing. methodology for developing a laboratory inverse re-drawing device. The drawing process is performed in two phases: a direct drawing of a circular blank followed by a second reverse re-drawing phase on the same device.

A work is also done on the finite element model for the single deep drawing. This single deep drawing is used to validate the parameters of the numerical model. The main goal of this simulation is to define geometrical parameters of the process, in order to design a reverse re-drawing machine, and have the possibility in the future to compare experimental results and finite element results. The second goal is the estimation of the blank reaction (ability to support the process), and eliminate as well the default obtain during the simulation.

Key words: finite element simulations, inverse re-drawing, strain path.

24. Maier C., Tabacaru V., Banu M., Bouvier S., Marinescu V., ***Designing of a modular set of inverse re-drawing dies aided by FEM simulation***, Analele Universității "Dunărea de Jos" din Galați, Fasc. V., Tehnologii în construcția de maşini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

Abstract:

This paper deals with the methodology for developing a laboratory inverse re-drawing device. The drawing process is performed in two phases: a direct drawing of a circular blank followed by a second reverse re-drawing phase on the same device.

Finite element simulations are carried out in order to i).define geometrical characteristics of the modular re-drawing device and to ii). estimate the punch force evolution for different dimensions of punch, die and blankholder and for a large class of materials. Based on such FEM simulations, springs for the developed reverse deep drawing device are dimensioned. The use of springs gives the possibility to deform the material with an imposed blank-holder force. Finally, a draw of the designed modular device is presented considering all the results of the finite element simulation.

Key words: finite element simulations, inverse re-drawing, strain path, modular device.

25. Epureanu A., ***Reconfigurable manufacturing systems – the next generation***, Analele Universității "Dunărea de Jos" din Galați, Fasc. V., Tehnologii în construcția de maşini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

26. Lixandru I., Epureanu A., Frumusanu G., Craciun M.V., ***Coherence of RMS thermo-mechanical fields***, , Analele Universității "Dunărea de Jos" din Galați, Fasc. V., Tehnologii în construcția de maşini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

27. Marin F.B., Epureanu A., Oancea N., Marinescu V., ***Programming of reconfigurable machining systems – a new approach***, Analele Universității "Dunărea de Jos" din Galați, Fasc. V., Tehnologii în construcția de maşini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

28. Alamano A.M., Hauk N., Epureanu A., ***Adaptive-optimal control of reconfigurable machine tool*** , Analele Universității "Dunărea de Jos" din Galați, Fasc. V., Tehnologii în construcția de maşini, anul XXIV(XXIX) 2007, ISSN-1221-4566, (indexata **BDI**).

29. M. Banu, A. Epureanu, O. Naidim, ***A new algorithm for springback prediction of the automotive body cars using artificial intelligence methods***, The Annals of University Dunarea de Jos of Galati, Fascile V, p. 33, 2007, ISSN 1221-4566, (indexata **BDI**).

30. Frumusanu G., Oancea N., ***The influence of Poles Chois on the Approximating Precision of Wrapping Profiles Given by Poles***, Buletinul Institului Politehnic din Iasi publicat de Universitatea Tehnica "Gh. Asachi", 2006, Iasi, Tomul LII(LVI), Fasc. 5, Sectia Constructii de Masini, p.123-16, ISSN 1582-6392.

31. Banu M., Florescu M., Epureanu A., Marinescu V., ***An econometric model of the body cars manufacturing***, The Annals of University Dunarea de Jos of Galati, Fascile V, p. 37, 2007, ISSN 1221-4566, (indexata **BDI**).

32. Frumusanu G., Epureanu A., ***Chaotic dynamics of cutting processes applied to RMS Control***, The Annals of University Dunarea de Jos of Galati, Fascile V, p. 37, 2007, ISSN 1221-4566, (indexata **BDI**).

33. Paunoiu V, Maier C., Epureanu A., Banu M., ***Virtual compensation of springback in sheet metal deformation with multipoint reconfigurabile die*** The Annals of University Dunarea de Jos of Galati, Fascile V, p. 37, 2007, ISSN 1221-4566, (indexata **BDI**).

34. Maier C., Banu M., Paunoiu V., Epureanu A., ***Sheet metal forming analysis with multipoint reconfigurabile die using data mining technique*** , The Annals of University Dunarea de Jos of Galati, Fascile V, p. 37, 2007, ISSN 1221-4566, (indexata **BDI**).

35. Stoian C., Frumusanu G., ***RMS design principle***, The Annals of University Dunarea de Jos of Galati, Fascile V, p. 37, 2007, ISSN 1221-4566, (indexata **BDI**).

36. George C. BALAN, Alexandru EPUREANU, Ciprian CUZMIN,***The monitoring of a lathe using an artificial neural network - 5th part,*** (recordings spectral analysis, use of ANN on monitoring of the tool wear), SISOM 2007 and Homagial Session of the Commission of Acoustics, Bucharest 29-31 May

Abstract:

The study of machine-tool dynamic is realized here as "monitoring", meaning checking and improving the functioning of the machine. The state of processing is followed by certain sensors whose signs are processed inside the computer and then it takes the decision of monitoring, meaning the identification of a class from the set of classes (process conditions). In this part of the paper there are presented recordings spectral analysis and use of ANN on monitoring of the tool wear.

Keywords: monitoring, lathe, spectral analysis, ANN.

37. George C. BALAN, Alexandru EPUREANU, Ciprian Cuzmin, ***The monitoring of a lathe using an artificial network – 6th part*** (statistics, monitoring, fuzzy C-means methos), SISOM 2007 and Homagial Session of the Commission of Acoustics, Bucharest 29-31 May.

Abstract:

The study of machine-tool dynamic is realized here as "monitoring", meaning checking and improving the functioning of the machine. The state of processing is followed by certain sensors whose signs are processed inside the computer and then it takes the decision of monitoring, meaning the identification of a class from the set of classes (process conditions). In this part of the paper there are presented statistics, monitoring and fuzzy c-means method.

Keywords: monitoring, lathe, ANN.

38. George C. Balan, Alexandru EPUREANU ***The monitoring of the turning tool wear process using an artificial neural network***, presented at "The 2nd I*PROMS Virtual International Conference on Intelligent Production Machines and Systems", Cardiff, U.K., 2006, published in Intelligent Production Machines and Systems, Elsevier, 2006, Editors D.T.Pham , E.E.Eldukhri, A.J.Soroka, pp. 20-25.

Abstract:

The study of machine tool dynamics is performed here as “monitoring”, which involves the checking and improving of machine functioning. Signals collected from certain sensors are processed by a computer. These data then lead to the monitoring decision, which is to associate the current state of operation with one of the classes from a set of known classes. For monitoring in turning, the classes (tool conditions) are shown.

The experimental setup, experimental results and data processing are presented. For the monitoring of the tool wear, an artificial neural network (ANN) is used.

Keywords: monitoring, turning, ANN (artificial-neural-network).

39. Balan C., Epureanu A, Vacarus V, ***The monitoring of a lathe using an artificial neural network - 3rd part (the experimental setup)***, The Annual Symposium of the Institute of Solid Mechanics SISOM 2006, Academia Romana, Bucuresti, May 2006.

Abstract:

The study of machine-tool dynamic is realized here as “monitoring”, meaning checking and improving the functioning of the machine. The state of processing is followed by certain sensors whose signs are processed inside the computer and then it takes the decision of monitoring, meaning the identification of a class from the set of classes (process conditions).

In this part of the paper we continue the presentation of the experimental setup (cutter holder accelerations, cutting temperature, surface roughness, power), of the cutting working conditions and of the tool wear.

Keywords: monitoring, lathe, experimental setup.

40. BALAN, C. George; EPUREANU, Alexandru; POPA, Rustem & CONSTANTIN, Ionut, ***CHATTER DETECTION USING THE MAIN CUTTING FORCE***, trimisa la The 18th INTERNATIONAL DAAAM SYMPOSIUM "Intelligent Manufacturing & Automation: Focus on Creativity, Responsibility and Ethics of Engineers", Croatia, 24-27th October 2007.

Abstract:

(Li, 1997) uses the coherence function between two crossed accelerations to identify chatter in turning. In a frame of an experiment we registered the accelerations of the cutter-holder, for different cutting wear classes (c1 ÷ c6), where c6 means “Chatter”. 12 monitoring indices were calculated, among which: $X_5 \rightarrow F_z$ variation range; $X_6 \rightarrow$ number of intersections of oscillogram F_z with its average value. The histograms of the column matrices corresponding to the monitoring indices X_5 and X_6, shown for each class, underline the accurate use of these indices values for chatter detection. The coherence function between the accelerations in the directions Y and Z was calculated. The class recordings c6 falls (with an exception) under the criterion from (Li,1997), but it can be seen that 75 % from the c2 class recordings takes maximum value of the coherence function equal to or greater than 0.91. The first 6 monitoring indices were calculated for these recordings. According to a new criterion (which operate with the monitoring indices X_5 and X_6), these recordings are **not** within the class c6, but class c2. As a conclusion, we believe that the new criterion is much more efficient than those at (Li, 1997).

Keywords: turning, chatter detection, coherence function.

41. G. Balan si A. Epureanu ***The monitoring of a lathe using an artificial neural network (1-st part),*** Annals of DAAAM for 2005 & Proceedings of the 16-th International DAAAM Intelligent Manufacturing Symposium, ISSN 1726-9679, ISBN 3-901509-46-1, 19-22nd October 2005, Croatia, p. 019-020.

42. Banu M., Naidim O., Epureanu, A., ***Artificial Neural Network applied to the Extrusion Die Wear Prediction***, International Journal of Materials and Product Technology, ISSN (Online): 1741-5209 - ISSN (Print): 0268-1900, 2006 (indexata **ISI**).

43. Gavrus, M. Banu, E. Ragneau, C. Maier, V. Marinescu, ***Identification of Material Parameters for Deep-Drawing Process Using An Inverse Analysis of the Erichsen Test,*** Conferinta Internationala SIA2007, 24-25 octombrie 2007, Caen, Franta, (indexata **ISI**).

44. Ciocan Ovidiu, ***Echipament Tehnologic Destinat Prelucrării prin Deformare Plastică Superficială a Suprafețelor Cilindrice Exterioare***, Lucrările T.M.C.R., Editura Tehnică a Moldovei, Chişinău, 2007, pag. 271- 275, ISBN 978-9975-45-035-5 (vol. 1).

45. Păunoiu Viorel, Spiridonescu Cornelia, Nicoară Dumitru, Epureanu Alexandru, ***Researches regarding the deep drawing with combined restraint,*** TMCR, Chisinău, 2007, pag. 279-284, ISBN 978-9975-45-035-5.

46. Vacarus V., Gheorghies C., Dima Mircea, ***Diagnosis of the structural changes intro superficial layer during high speed machining*** , DIPRE Bucuresti 2007.

47. Epureanu A. ,Teodor V., Oancea N., Banu M., Marinescu V., ***Method for On-Line Identification of Reconfigurable Machine-Tool Geometry Based on a Topological Neural Approach***, Journal of Manufacturing Science and Engineering(trimisa spre publicare) (indexata **ISI**).

48. Teodor V., Epureanu A., Cuzmin C., ***Method for Identification of Geometric Feature Family Based on Genetic Algorithm and Neural Approach*** Procedeeings of WSEAS EUROPEAN COMPUTING CONFERENCE, Athens, Greece, September 25-27, 2007 (indexata **ISI**).

49. Paunoiu V., Nicoara D., Epureanu A., Maier C., Banu M., ***Flexible stamping technology based on multipoint reconfigurable die***, ICMS 2007, Buletinul Institutului Politehnic din Iaşi 2007.

50. Epureanu A.. Maier C.,Vacarus V. , Gheorghies C., ***Researches concerning residual stresses in the superficial layer of the high-speed machined surfaces,*** "3rd National Conference on Applied Physics", iunie 2007.

51. Banu M., Takamura M., Hama T., Naidim O., Teodosiu C., Makinouchi A., ***Simulation of Springback and Wrinkling in Stamping of a Dual-phase Steel Rail-Shaped Part***, Journal of Material Processing Technology, Volume 173, Issue 2, 10 April 2006, Pages 178-184, Elsevier Science, ISSN 0924-0136, (indexata **ISI**).

52. Breaz R.E., Bologa O., Racz G.S., Oleksik V., ***Motion control with fuzzy controllers - a study by means of simulation***, WSEAS Transaction on Systems, ISSN 1109-2777, (indexata **BDI**).

53. Breaz R.E., Oleksik V., Bologa O., ***Mechatronic Contouring System for Unconventional Sheet Metal Forming***, Proceedings of The 32nd Annual Conference of the IEEE Industrial Electronics Society IECON'06, Paris, France, November 7-10, 2006, ISBN 1-4244-0136-4, ISSN 1553-572X, IEEE Catalog Number 06CH37763C, (indexata **BDI**).

54. Haddadi H., Bouvier S., Banu M., Maier C., Teodosiu C., ***Towards an accuarate description of the anisotropic behaviour of sheet metals under large plastic deformationsL Modelling, numerical analysis and identification***, International Journal of Plasticity, Volume 22, Issue 12, December 2006, Pages 2226-2271, Elsevier Science, ISSN: 0749-6419, (indexata **ISI**).(Factor de impact 4,1)

55. Banu M., Epureanu A., Maier C., ***A new experimental scheme for a global evaluation of springback in advanced thin metal sheets forming***, Analele Universitatii "Dunarea de Jos" din Galati, Fascicula V, Anul XIX (XXIV), 57, 2006, ISSN 1221-4566 , (indexata **BDI**).

56. Banu M., Epureanu A., Maier C., ***Application of Data Mining in Springback Estimation of the Hat-Bending Parts,*** Analele Universitatii "Dunarea de Jos" din Galati, Fascicula V, Anul XIX (XXIV), 57, 2006, ISSN 1221-4566, (indexata **BDI**).

57. Brabie G., Chirita B., ***Application of the neural network method in optimization of the drawing process of hemispherical parts made from metal sheets***, Archives of Civil and Mechanical Engineering, Polish Academy of Sciences, vol. VI, no. 2, 87-92, 2006, (indexata **BDI**).

58. Brabie G., Ene F., Chirita B., ***Analysis by simulation of the springback effects on the part dimensions in the case of drawparts made from metal sheets***, TSTM 12, Academia de Stiinte Tehnice, p. 26 -31, 2006.

59. Brabie G., Ene F., Chirita B., ***Blankholder force influence on the springback intensity in the case of hemispherical draw parts made from metal sheets***, TSTM 12, Academia de Stiinte Tehnice, p. 22-25, 2006.

60. Brabie, G., Ene, F., Chirita, B., ***Configuration of the deep drawing tools based on an optimization system using neural network methods,*** TSTM 12, Academia de Stiinte Tehnice, p. 66 -70, 2006.

61. Breaz R. E., Ciortea M.Z., ***Comparing PI Digital and Fuzzy PD Controllers for Mechatronic feed drives by means of simulation,*** Acta Universitatis Cibiniensis Buletin Stiintific al Universitatii din Sibiu, Seria Tehnica A, Machine Tools and Robots, Sibiu, 2005, ISSN 1221-4949 , (indexata **BDI**).

62. Breaz, R.E., Oleksik, V., Bologa, O., ***Studies Regarding the Feed Drive of a Specialised Machine Tool by Means of Dynamic Simulation***, Proceedings of the 15th International Conference on Manufacturing Systems – ICMaS 2006, Published by Editura Academiei Romane, Bucharest 26-27 October, 2006, ISSN 1842-3183.

63. Dima, M., Oancea, N., Teodor, V., ***Cutting Scheme Modeling at Generation by Rack-gear Tool. Algorithms,*** Buletinul Institutului Politehnic din Iasi publicat deUniversitatea Tehnica ”Gh.Asachi”, Iasi Tomul LII(LVI), Fasc. 5, A, Sectia Constructii de Masini, p.85-90,2006, ISSN 1582-6392.

64. Dima, M., Teodor, V., Oancea, N., ***Cutting Scheme-Reconfiguration Criteria of the Rack-Gear Tool Reconfigurability. Solutions for Rack Gear Tool***, Buletinul Institutului Politehnic din Iasi publicat de Universitatea Tehnica ”Gh. Asachi”, 2006, Iasi Tomul LII(LVI), Fasc. 5, A, Sectia Constructii deMasini, p. 97-104, ISSN 1582-6392.

65. Frumusanu, G., Oancea, N., **The Influence of Poles Choice on the Approximating Precision of Wrapping Profiles Given by Poles,** Buletinul Institutului Politehnic din Iasi publicat deUniversitatea Tehnica ”Gh. Asachi”, 2006, Iasi, Tomul LII(LVI) ,Fasc. 5, A, Sectia Constructii deMasini, p. 123-16, ISSN1582-6392.

66. Frumusanu,G., Oancea, N., Dura, G., ***Applications of Representation by Poles as a Way to Aproximate Wrapping Curves of Profiles Assocoiated to Rolling Centrods***, Proceedings of the International Conferances on Manufacturing Systems ICMaS 2006, Editura Academiei Romane, p. 303-306, ISSN: 1842-3183.

67. Gîrjob C., Bologa O., Racz G., ***Determination Methods Of The Formability Of Metalic Material With Low Plasticity***, Proceedings of the 15th International Conference on Manufacturing Systems – ICMaS2006, Published by Editura Academiei Romane, University POLITEHNICA of Bucharest, Machine and Manufacturing Systems Department, Bucharest, Romania, 26 - 27

October, 2006 ISSN 1842-3183, (indexata **BDI**).

68. Marinescu V., Constantin I. C., Epureanu A., Teodor V., ***Graphical Programming of Programmable Logic Controllers. Case Study for a Punching Machine***, Publicată în revista Enformatika, vol. 15, ISBN 975-00803-4-3, pag. 273-277, (indexata **BDI**).

69. Oancea, N., Frumusanu, G., Dura, G., ***Algorithms for Representation by Poles as a Way to Aproximate Wrapping Curves of Profiles Assocoiated to Rolling Centrods***, Proceedings of the International Conferances on Manufacturing Systems ICMaS 2006, Editura Academiei Romane, p. 319-322, ISSN 1842-318.

70. Paunoiu V., Epureanu A., Nicoara D., Ciocan O., ***A review of the sheet metal forming methods using reconfigurable dies***, Analele Universității "Dunărea de Jos" din Galați, 2006 .(indexata **BDI**).

71. Paunoiu V., Nicoara D., Maier C., Banu M., Epureanu A., ***Design an experimental reconfigurable die for sheet metal forming,*** Analele Universității "Dunărea de Jos" din Galați, 2006 , (indexata **BDI**).

72. Racz G., Gîrjob C., ***Dynamic Behaviour Of The Mechanical Presses***, Proceedings of the 15th International Conference on Manufacturing Systems – ICMaS2006, Published by Editura Academiei Romane, University POLITEHNICA of Bucharest, Machine and Manufacturing Systems Department, Bucharest, Romania, 26 - 27 October, 2006 ISSN 1842-3183, (indexata **BDI**).

73. Epureanu, Al., Teodor, V., Dima, M., Oancea, N., **A *Reconfigurated Rack-Tool for Generation of Gears***, International Journal of Advanced Manufacturing Technology, transmisă spre evaluare (indexata **ISI**).

74. Cuzmin, C., Cuzmin, G., Epureanu, Al., ***Internal Gear Cutting Generation with Toroidal Hob***, International Journal of Advanced Manufacturing Technology, transmisă spre evaluare (indexata **ISI**).

75. Oancea, N., Mihaluță, M., Teodor, V., ***A New Mathematical Model for the Gear Cutter Profile Used in the Generation of Interior Poliform Surfaces***, The Annals of "Dunarea de Jos" University of Galati, Fasc. V, Year XXIV (XXIX), Technologies in Machine Building, ISSN 1221-4566, 2006, pag. 40-43 (indexata **BDI**).

76. Oancea, N., Teodor , V., Mihaluță, M., Pîrvu, G., ***The Modeling of Generation of Conical Polyform Surfaces***, The Annals of "Dunarea de Jos" University of Galati, Fasc. V, Year XXIII (XXVIII), Technologies in Machine Building, ISSN 1221-4566, 2005, pag.15-21(indexata **BDI**).

77. Valentin Tăbăcaru, Mihaela Banu, Salima Bouvier, ***Machinability analysis by Wire Cut Electroerosion of special hard metals***, Revista de Tehnologii Neconventionale, Nr. 2, Editura PRIM, Iaşi, 2007, pag. 113-120, ISSN 1454-3087 (indexata **BDI**).

78. Cucu, M., Teodor, V., Oancea, N., ***Software for Worm Cutter Profiling***, Proceedings of "The 5th International Conference on Advanced Manufacturing Technologies-ICAMT 2007, AGIR Publishing House, ISSN 1843-3162, pag. 325-328, Bucureşti, 2007.

79. Oancea, N., Cucu, M., Teodor, V., ***Tangents Method for Graphical Representation of a Rotary Cutter Profile***, Proceedings of "The 2nd International Conference on Engineering Graphics and Design- ICEGED, 2007, "Dunarea de Jos" University, Galați 2007, Cermi, Iaşi, pag. 321-324, ISBN 978-973-667-252-1.

80. Dima, M., Oancea, N., ***Model for the Graphical Determination of the Roughness***, Proceedings of "The 2nd International Conference on Engineering Graphics and Design- ICEGED, 2007, "Dunarea de Jos" University, Galati, CERMI, Iaşi, pag. 253-254, ISBN 978-973-667-252-1.

81. Dima, M., ***Modele pentru ameliorarea procesului de danturare***, Tehnologii Moderne Calitate Restructurare 2007, Universitatea Tehnică a Moldovei, vol. 2, Chişinău, pag. 98-101, ISBN 978-975-45-034-8, ISBN 978-9975-45-035-2, 2007.

82. Epureanu, A., Cucu, M., Teodor, V., ***Metoda tangentelor pentru profilarea sculelor de tip cuțit-roată***, Tehnologii Moderne Calitate Restructurare 2007, Universitatea Tehnică a Moldovei, vol. 2, Chişinău, pag. 102-105, ISBN 978-975-45-034-8, ISBN 978-9975-45-035-2.

83. George BALAN, ***The monitoring of a lathe using an artificial neural network – 4th part (experimental results, data processing)***, "The Annual Symposium of the Institute of Solid Mechanics SISOM 2006, Academia Romana, Bucuresti, May 2006", publicata pe CD-ul Simpozionului.

84. Oancea, N., Mihăluță, M., Teodor, V., ***Aproximation of the Gear Cutter Profile Used in the Generation of Interior Polyform Surfaces***, Analele Universității „Dunărea de Jos" din Galați, Fasc. V, 2006, ISSN 1221-4566; (indexata **BDI**).

85. Oancea, N., Dura, G,. Paunoiu, V., ***Representation by Pole, a Form for Expression the Elementary Profiles Generated by Wrapping***, Proceedings of the 4th INTERNATIONAL CONFERENCE ON ADVACED MANUFACTURING TECHNOLOGIES, ICAMat 2005, Editura Academiei Române, 2005, ISBN 973-27-1254-6, pag. 513-518.

Abstract:

Multiple representations forms for profiles and surfaces are known: in analytic form using equations in explicit and implicit form, in vector form, parametric. Also approximate representations are used but this satisfied only if it's considering a level of accuracy knowledge of these surfaces: shapes as discrete representations, by a finite points cloud, polyhedral representation, by pole. The last one has the advantage of a condensate representation of the surfaces with respect an imposed accuracy. In this context, the paper presents the problem of elementary shapes (line segment, arc) using the representation by pole knowing that these are the based elements for the composite profiles, generated by wrapping in rolling method.

86. Frumusanu, G., Cucu, M., Oancea, N., ***Tangents Method to Profile Rack-Tools to generate by Wrapping***, The Annals of "Dunarea de Jos" University of Galati, Fasc. V, Year XXIV (XXIX), Technologies in Machine Building, ISSN 1221-4566, 2006, pag. 70-75.

Abstract:

Modelling surfaces generated by wrapping, by using the rolling method supposes to know a rack-tool profile numerical model together to a specific algorithm to study the enwrapped of a profiles family discreetly expressed. On this way, a specific algorithm —"Tangents method"— was created, in order to allow enwrapped surfaces study, when profile to be generated is discreetly represented. The quality of this method was proved already known by comparing the results from its application to the solutions given by already known methods. Examples when generating by using a rack-tool an elementary profile are presented. The results obtained shows the quality of suggested algorithm to study enwrapped profiles

associated to a couple of rolling centrods.

87. Cucu, M., Oancea, N., Teodor, V., ***Metoda tangentelor – profilarea sculei-cremalieră pentru profiluri circulare***, Tehnologii Moderne Calitate Restructurare 2007, Universitatea Tehnică a Moldovei, vol. 2, Chişinău, pag. 86-89, ISBN 978-975-45-034-8, ISBN 978-9975-45-035-2, 2007.

Abstract:

"Tangents Method", as algorithm used to profile a rack-type tool, to generate by wrapping elementary profiles (in the presented case – a circular profile) it is proved to be, as results, comparable to the theorems and methods already accepted. Numerical examples are exposed, realized when generating a circular profile, associated to a circular centrod by R_{rp} radius, obtained by using the new algorithm and also by using algorithms specific to "Willis Method" and "Plain Generating Trajectories Method".

88. Cucu, M., Teodor, V., Oancea, N., ***Software for Worm Cutter Profiling***, Proceedings of "The 5th International Conference on Advanced Manufacturing Technologies-ICAMT 2007, AGIR Publishing House, ISSN 1843-3162, pag. 325-328, Bucureşti, 2007.

Abstract:

Based on the enwrapping conditions expressions specifically to "tangents method" were elaborated dedicated software suits, in java programming language, for rack-gear profiling generating an ordered profiles curls, associated with a couple of rolling centrodes, as so as for the determination of axial section form of worm cutter reciprocally enwrapping, with point contact between the same curl surfaces. The software, made as applet, allow the numerical and graphical representation of enveloping surfaces assemblies: rack-gear tool and axial section of primary snail of worm cutter tool.
The applets are made by object oriented programming in java programming language.

89. Breaz, R., Bologa, O., Oleksik, V., Racz, G., ***Computer Simulation for the Study of CNC Feed Drives Dynamic Behavior and Accuracy***, The IEEE Region 8 EUROCON Conference, September 9-12, Warsaw, Poland, (indexed IEEE Explore, indexed EI Compendex, indexed Library of Congress).

90. Breaz, R., Bologa, O., Racz, G., ***Improving CNC Machine Tools Accuracy Using Modeling and Computer Simulation Techniques***, The 4th IFAC Conference on Management and Control of Production and Logistics MCPL 2007, Sibiu, ROMANIA, September 27- 30, 2007, ISBN 978-973-739-481-1.

91. Racz, G., Bologa, O., Breaz, R.E., ***Design and Optimization of the Press Structure***, The 4th IFAC Conference on Management and Control of Production and Logistics MCPL 2007, Sibiu, ROMANIA, September 27- 30, 2007, ISBN 978-973-739-481-1.

92. Oleksik, V., Bologa, O., Racz, G., Deac, C, ***Roughnes Control of Parts Obtained through Incremental Sheet Forming***, The 4th IFAC Conference on Management and Control of Production and Logistics MCPL 2007, Sibiu, ROMANIA, September 27- 30, 2007, ISBN 978-973-739-481-1.

93. Gavan E., Paunoiu V., Modiga M. - ***Cylindrical Thick Plate Forming with Reconfigurable Die-Punch Tool***., Conferința internațională de comunicări ştiințifice Tehnologii moderne. Calitate. Restructurare, Vol. 1, Universitatea Tehnică a Moldovei, pag. 400-403, ISBN 9975-9875- 4-0, Chişinău, Republica Moldova, 2005,

Abstract: In the present, there are studies to forming thin steel plates with special equipments based on the "discrete die-punch" reconfigurable tooling concept. To study applicability of this forming process to cylindrical thick steel plates, the present simulation is carried out. The numerical study is made using FEM soft LS-DYNA. The geometrical modeling of the die-punch tool requests calculations for the characteristic profiles coordinates of working surfaces. A series of conclusions obtained from the numerical simulation are shown at the end.

94. Paunoiu, V., Nicoara, D., Spiridonescu, C., Epureanu, A. - ***Virtual deep drawing process with combined restraint*** , The 8th International ESAFORM Conference on Material Forming, Cluj-Napoca, Romania, April 27-29, 2005, pag. 333-336

Abstract: One of the methods for increasing the degree of deformation in the deep drawing of the cylindrical parts is the method with the combined restraint. The deep drawing process has two stages that take place on the same die. This combination assures a better control of the material flow. In the paper are presented the numerical simulations of this deformation technology using DYNAFORM software. The numerical results are compared with the ones obtained in the real case of deformation. The thickness distributions and the height of the products are the parameters used for comparison. It has been concluded the importance of the deformation method and of the simulation tool in terms of quality, development and production costs and time saving.

Key words: deep-drawing, simulation, FEM, quality, virtual processing, sheet metal forming

95. Paunoiu V., Nicoara D., Lopez Cantera A. M,, Higuera Arroyo P. – ***Experimental researches regarding the forming limit curves using a reduced scale samples***, Analele Universității Dunărea de Jos din Galați, fasc. V, 2005, pag. 55-59, ISSN 1221-4566

96. Paunoiu V., Nicoara D., Lopez Cantera A. M,, Higuera Arroyo P. - ***Numerical simulation of forming limit curves using a reduced scale samples***, Analele Universității Dunărea de Jos din Galați, fasc. V, 2005, pag. 60-65, ISSN 1221-4566

97. Paunoiu, V., Maier, C., Epureanu, A., Banu, M. - ***Virtual compensation of springback in sheet metal deformation with multipoint reconfigurable die***, Analele Universității Dunărea de Jos din Galați, Fascicole 5, Tehnologii in Constructia de Maşini, ISSN 1221-4566, 2007