



Manufacturing and processing

7. Monocrystalline silicon solar cells applied in photovoltaic system

L.A. Dobrzański, A. Drygała,
M. Giedroć, M. Macek (Poland)



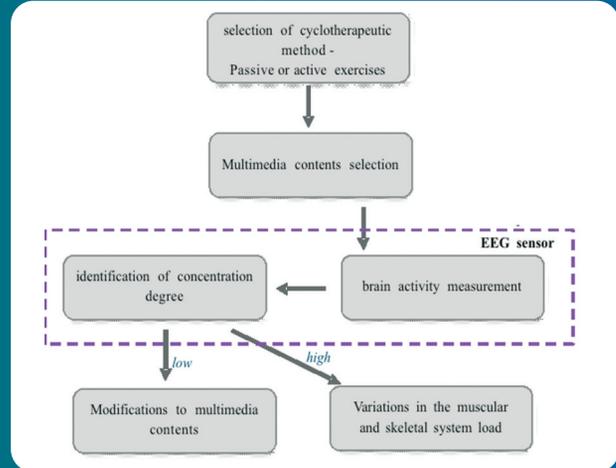
Analysis and modelling

14. Application of interactive rehabilitation equipment for kinesitherapy of children with lower limbs dysfunction

I. Chuchnowska, A. Sękala (Poland)

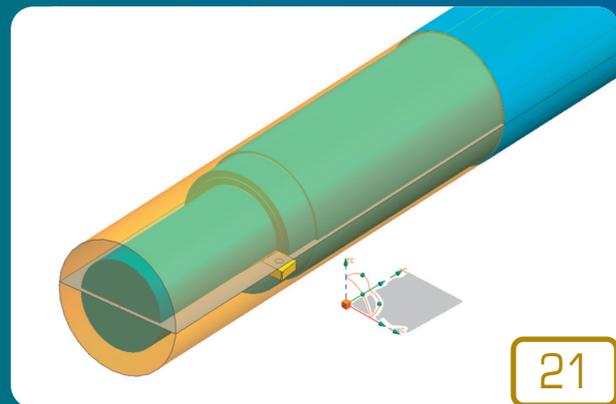
21. Relative manufacturing costs in series of types with partial similarity

M. Cielniak, P. Gendarz (Poland)



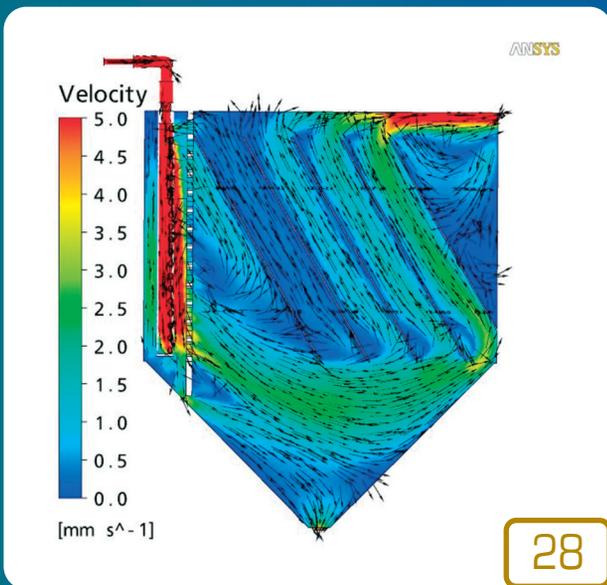
The research monograph entitled "Application of interactive rehabilitation equipment for kinesitherapy of children with lower limbs dysfunction" by I. Chuchnowska and A. Sękala on a **page 14** demonstrates an innovative approach to the process of rehabilitation of children under the age of 3. It shows a system supporting the process of rehabilitation based on cyclotherapy. This work presents a method of combining traditional cyclotherapy with stimulation of intellectual development of the child by means of using the Glenn Doman method or music therapy depending on the degree of intellectual development of the child. Rehabilitation will take place in the form of a play with the use of specially designed equipment. The combination of movement therapy with psychological stimulation will exploit to the maximum extent, natural abilities of brain development of small children. This is enormously important as it is often a factor that conditions the length and, first of all, the quality of life of the patients. The combination of movement-based therapy with mental stimulation will make it possible to use the child's potential in a more effective way and quicken the process of rehabilitation. The developed device will include all the most important factors that may affect the physical structure of children and their psyche, which can directly affect the improvement of their health.

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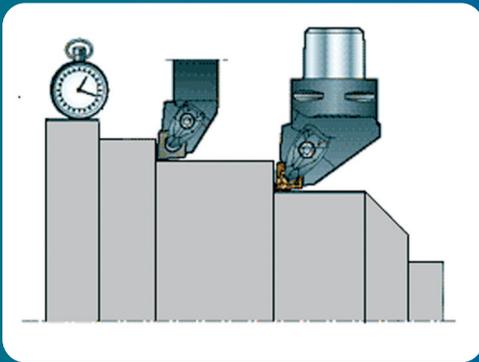


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In the paper entitled "Relative manufacturing costs in series of types with partial similarity" by M. Cielniak and P. Gendarz on a **page 21** the relative manufacturing costs estimation process based on the similarity theory is presented. The manufacturing costs were calculated with similarity theory, where the exponents were assigned to operations and cutting processes. Many of construction series of types are partially similar. Because of that it is important to develop methods of manufacturing costs of series of types based on partial similarity. The cutting processes exponents use gives more accurate results than operation exponents. The described analysis presents the manufacturing costs estimation method of partially similar series of types where exponents are assigned to cutting processes. The presented method was applied to sleeve series of types manufacturing cost estimation process.



The Analysis and modelling section represented by K. Kołodziejczyk, M. Banaś and P. Warzecha on "Flow modeling in a laboratory settling tank with optional counter-current or cross-current lamella" on a **page 28** presents the design of laboratory lamella settling tank used in the laboratory researches of sedimentation process, optionally in either cross-current or counter-current. This paper presents a selection of geometric parameters of the device made using numerical methods to analyze the flow in designed settling tank. As a result of analyses of the final device design was developed that allows to obtain the proper distribution of flow velocity. The simulations allowed the selection of the proper construction of the tank, in which the velocity distributions in successive channels are comparable to the fulfillment of lamella and which will allow to charge uniform stream of liquid (suspension). The settling tank allows sedimentation to take place in both configurations with the preservation of an identical sedimentation surface. This concept allows a comparison of processes in these systems at a given identical surface load. The use of numerical methods of modelling the flow in the settling tank allowed to fine-tune the design of the device at the early stage, and in particular the parameters of the distribution of suspension.



In the paper entitled "The theory of similarity in turning operations" by R. Rząsiński on a **page 37** the development of series of types of technology issues is presented. This is accomplished using the innovative technological similarity theory. The transformation presented in the theory relates to the turning machining processes. The analyzed methods develop the algorithmisation of engineers and technologists environment and support the integration with the process of preparation of the production. The described methods were being developed on the practical examples of the creating of the series of types of the hydraulic cylinders used in mining. The method of the technological similarity presented in the paper is the basis of the selection of technological features in the process of series of types and module systems of constructions and technology creating. The development of the theory of similarity allows to generate machining parameters for the series of types of construction (blank, machining parameters, tools).

28. Flow modeling in a laboratory settling tank with optional counter-current or cross-current lamella

K. Kołodziejczyk, M. Banaś, P. Warzecha (Poland)

37. The theory of similarity in turning operations

R. Rząsiński (Poland)

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