

CONTENTS

- Despotuli A. L., Andreeva A. V.** *Creation of New Types of Thin-Film Solid Electrolyte Supercapacitors for Microsystems Technology and Micro (Nano) Electronics* 2

For thin-film supercapacitors the critical consideration of modern state of developments is made.

With the aim of creation of supercapacitors suited for MST, micro and nanoelectronics the conception of the perfect (coherent) electrode/solid electrolyte interfaces is proposed. Thin-film capacitive heterostructures of different types are developed and investigated.

- Gradetsky V. G., Knyazkov M. M., Solovtsov V. N.** *Control Motion Dynamics of Inside Tubes Miniature Robots* 7

The methods of the control motion forming inside of the small diameter tubes are presented. The base of the methods includes optimization of parameters of electromagnetic minirobot's drives and the forming of the necessary currents in the control coils. Experimental study permitted to determine such parameters of the input signals as frequency, amplitudes, impulses times and pauses between the impulses.

- Balabanov D. E., Nikitov S. A.** *Determination of the Micromagnetic Objects Parameters Using Magnetic Force Microscopy* 15

The new mechanism influencing on image formation in magnetic force microscopy (MFM) is proposed. This mechanism takes into account the nonlinear components of the elasticity constant of the cantilever material. The method for determination of the magnetic parameters of the medium based on the results of the measurements and considering various mechanisms influencing image formation.

- Baturin A. S., Knyazev A. I., Nikolsky K. N., Chesov R. G., Sheshin E. P., Zaitsev N. A., Basina V. N., Ravilov M. F.** *The Methods for Manufacturing Autoemission Cathodes to be Used in MEMS Device Control Systems* 21

The article proposes an approach based on which it is possible to combine the microfabrication technology and vacuum electronics

technology for making more reliable MEMS device control systems. The approach consists in parallel manufacturing of a MEMS device and a control circuit on one chip using the surface micromachining technology. In this approach the control circuit is based on autoemission cells. The main difficulty in such an approach is the manufacturing process for an efficient cathode ensuring steady autoemission under low field strengths. The use of carbon fibers as a cathode material enables to solve such a problem.

- Stepanov Yu. I.** *Application MEMS/MST Technologies for Automobile Techniques* 23

Brief review on MEMS/MST devices and technologies application for automobile techniques during the past 5 years is introduced.

- Balan N. N.** *Holographic Micrometry for MEMS-Structures* 28

The application of holographic interferometry for diffusely reflecting MEMS-structures displacements and deformations measuring is described. The equation for definition of Young modulus from value of test-object flexure is presented. The experimental setup is described and results of test experiments are presented.

- Ershov B. G.** *Formation of Nanoparticles in Aqueous Solutions: Atoms, Clusters, Fast Processes of Metal Nucleation* 31

Atoms and metal ions in unusual valence states are formed as intermediate products of oneelectron reduction of metal ions in aqueous solutions. Short-lived homonuclear and heteronuclear positively charged and neutral clusters appear on early stages of the aggregation of metal atoms and ions in abnormal valence states. The nature and the role of clusters in a chemical reduction of metal ions in aqueous solutions were discussed. The mechanism of the metal nucleation includes the formation of atoms and metal ions in unusual valence states and illustrates the sequence and diversity of small clusters preceding the evolution of the metal phase (nanoparticles).

Подписку за рубежом принимают:

For foreign subscribers:
 ЗАО МК-Периодика. E-mail: info@periodicals.ru;

Editor-in-Chief Ph. D. Petr P. Maltsev
 Index 79493.

Address is: 4, Stromynsky Lane, Moscow, 107076, Russia. Tel./Fax: (7 095) 269-5510.