Emerging Applications of Vacuum-Arc-Produced Plasma, Ion and Electron Beams

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Emerging Applications of Vacuum-Arc-Produced Plasma, Ion and Electron Beams

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TABLE OF CONTENTS

Preface	vii
COHESIVE ENERGY RULE FOR VACUUM ARCS A. Anders	1
PHYSICAL BASIS OF PLASMA PARAMETERS CONTROL IN A VACUUM ARC I.A. Krinberg	15
SOURCES OF MULTIPLY CHARGED METAL IONS: VACUUM DISCHARGE OR LASER PRODUCED PLASMA? V. Paperny	27
STATUS OF MEVVA EXPERIMENTS IN ITEP T.V. Kulevoy, R.P. Kuibeda, V.A. Pershin, V.A. Batalin, D.N. Seleznev, S.V. Petrenko, V.P. Zubovsky and A.A. Kolomiets	39
UNDERLYING PHYSICS OF E-MEVVA OPERATION A. Hershcovitch, V.A. Batalin, A.S. Bugaev, N. DeBolt, V.I. Gushenets, B.M. Johnson, A.A. Kolomiets, R.P. Kuibeda, T.V. Kulevoy, E.M. Oks, F. Patton, V.I. Pershin, S.V. Petrenko, D.N. Seleznev, N. Rostoker, A. VanDrie, F.J. Wessel and G.Yu. Yushkov	51
TECHNICAL DESIGN OF THE MEVVA ION SOURCE AT GSI AND RESULTS OF A LONG URANIUM BEAM TIME PERIOD F. Heymach, M. Galonska, R. Hollinger, K.D. Leible, P. Spädtke, M. Stork and E. Oks	59
SIMULATION OF THE EXTRACTION FROM A MEVVA ION SOURCE P. Spädtke	67
PRODUCING OF GAS AND METAL ION BEAMS WITH VACUUM ARC ION SOURCES A.S. Bugaev, V.I. Gushenets, A.G. Nikolaev, E.M. Oks, K.P. Savkin, P.M. Schanin, G.Yu. Yushkov and I.G. Brown	79
HIGH CURRENT ELECTRON SOURCES AND ACCELERATORS WITH PLASMA EMITTERS V.I. Gushenets and P.M. Schanin	91
EMISSION METHODS OF EXPERIMENTAL INVESTIGATIONS OF ION VELOCITIES IN VACUUM ARC PLASMAS A.S. Bugaev, V.I. Gushenets, A.G. Nilolaev, E.M. Oks, G.Yu. Yushkov, A. Anders and I.G. Brown	105
GASEOUS PLASMA PRODUCTION USING ELECTRON EMITTER BASED ON ARC DISCHARGE M.V. Shandrikov, A.V. Vizir, G.Yu. Yushkov and E.M. Oks	115
VACUUM ARC ION SOURCES: CHARGE STATE ENHANCEMENT AND ARC VOLTAGE M. Galonska, F. Heymach, R. Hollinger and P. Spädtke	123
LINEAR VACUUM ARC EVAPORATORS FOR DEPOSITION OF FUNCTIONAL MULTI-PURPOSE COATINGS A.V. Demchyshyn, Yu.A. Kurapov, V.A. Michenko, Ye.G. Kostin, A.A. Goncharov and Ye.G. Ternovoi	131

ARC GENERATORS OF LOW TEMPERATURE PLASMA AND THEIR APPLICATIONS N.N. Koval and P.M. Schanin	151
ELECTRON BEAM DEPOSITION OF HIGH TEMPERATURE SUPERCONDUCTING THIN FILMS G. Mladenov, K. Vutova, G. Djanovski, E. Koleva, V. Vassileva and D. Mollov	163
DEPOSITION OF NANOSCALE MULTILAYERED STRUCTURES USING FILTERED CATHODIC VACUUM ARC PLASMA BEAMS M.M.M. Bilek, D.R. McKenzie, T.W.H. Oates, J. Pigott, P. Denniss and J. Vlcek	173
IMPLANTATION OF STEEL FROM MEVVA ION SOURCE WITH BRONZE CATHODE Z. Werner, J. Piekoszewski, R. Grötzschel and W. Szymczyk	187
RESISTANCE TO HIGH TEMPERATURE OXIDATION IN Si-IMPLANTED TiN COATINGS ON STEEL Z. Werner, J. Piekoszewski and W. Szymczyk	191
VACUUM ARC DEPOSITED DLC-BASED COATINGS O.R. Monteiro and M.P. Delplancke-Ogletree	197
APPLICATIONS OF VACUUM ARC PLASMA TO NEUROSCIENCE I.G. Brown, O.R. Monteiro, E.A. Blakely, K.A. Bjornstad, J.E. Galvin and S. Sangyuenyongpipat	205
CONCERNING REGULARITIES OF PARTICLE'S DRIVING IN POTENTIAL FIELDS (ON EXAMPLE OF ELECTRON'S MOVEMENT IN ELECTRICAL FIELD WITH DISTRIBUTED POTENTIAL) V.I. Fedulov	213 227
HIGH CURRENT PLASMA LENS: STATUS AND NEW DEVELOPMENTS A.A. Goncharov	235
Subject Index	

PREFACE

The NATO-sponsored Advanced Research Workshop (ARW) on “Emerging Applications of Vacuum-Arc-Produced Plasma, Ion and Electron Beams” was held at the Baikal Dunes Resort, Lake Baikal, Russia, on June 24-28, 2002. Participants were from NATO countries Belgium, Czech Republic, Germany, Poland, Turkey and the USA, and from NATO partner countries Bulgaria, Russia, Ukraine and Uzbekistan. The goal of the meeting was to bring together researchers involved in novel applications of plasmas and ion/electron beams formed from vacuum arc discharges, especially in less conventional or emerging scientific areas such as new perspectives on vacuum arc phenomena, generation of high charge state metal ions, heavy ion accelerator injection, multi-layer thin film synthesis, biological applications, generation of high-current high-density electron beams, and more. It was our hope that the meeting would engender new research directions and help to establish new collaborations, prompt new thinking for research and technology applications of vacuum arc science, and in general foster development of the field. The Workshop was a great success, as was clearly felt by all of the attendees. The small number of participants at the meeting tended to encourage a high level of closeness and communication between individuals. The location, a small resort on the western side of Lake Baikal in the vicinity of Irkutsk, was ideal – the isolated location, small and quiet, was excellent and was most conducive to discussion among individuals and small groups quite apart from the formal presentations.

We are greatly indebted to all of those who provided so much help in making the Workshop the success that it was. In particular we’d like to thank Igor Krinberg and Victor Paperny, Irkutsk for their great help with all of the local arrangements. We also thank Gera Yushkov, Scientific Secretary of the ARW, for all of his superb detailed organizing; it was a joy to have Gera as our guide and leader! We are also indebted to Timur Kulevoy for the remarkable job that he did in looking after a contingent of us at Moscow, particularly at the airport in the face of all kinds of problems due to a several-hour-delayed return flight from Irkutsk and consequent missed connections. We would especially like to express our great gratitude to the NATO Science Committee for providing the support that allowed the meeting to take place.

In this Proceedings the papers are listed in the same order, for the most part, as they were presented at the meeting. We are grateful to the authors for the prompt submission of manuscripts, allowing this Proceedings to be published in a timely manner.

Efim Oks
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