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## Section-1

### Invited Talks (Not available in CD-ROM)

#### **HIGH ENERGY PHYSICS IN NEXT DECADE AND BEYOND**

*Piermaria J. Oddone*

#### **SUPERCONDUCTING CYCLOTRON AT VECC**

*R. K. Bhandari*

#### **PELLETRON LINAC FACILITY AT TIFR, MUMBAI**

*R.G. Pillay*

#### **CHALLENGES IN ACCELERATOR PHYSICS**

*Amit Roy*

#### **CURRENT STATUS AND IMPROVEMENTS PLANNED IN INDUS-2**

*Gurnam Singh*

#### **SOLEIL SYNCHROTRON RADIATION SOURCE**

*Idir Mourad*

#### **STATUS OF THE CLIC FEASIBILITY STUDY**

*Steffen Doebert*

**GLOBAL R & D EFFORT FOR THE ILC SUPERCONDUCTING RF TECHNOLOGY**

*A. Yamamoto*

**STATUS AND COMMISSIONING OF JPARC**

*Pranab Saha*

**LASER WAKEFIELD ELECTRON ACCELERATION: AN OVERVIEW AND RECENT WORK AT RRCAT**

*P.D. Gupta*

**DEVELOPMENTAL ACTIVITIES FOR HIGH INTENSITY PROTON ACCELERATOR AT BARC**

*Pithamber Singh*

**RIV PROJECT AT VECC – ITS GOAL FOR ACCELERATOR DEVELOPMENT & FUNDAMENTAL RESEARCH**

*Alok Chakrabarti*

**INDIGENOUS MEDICAL LINAC DEVELOPEMENT PROGRAMME AT SAMEER**

*S. Karunakaran*

**INDUSTRIAL HIGH ENERGY ELECTRON ACCELERATORS TYPE ILU**

*Alexander A. Bryazgin*

**DYNAMIC RESPONSE OF ACCELERATOR POWER SUPPLIES – INDUS EXPERIENCE**

*A.C. Thakurta*

**DEVELOPMENT OF ELECTRON LINACS FOR INDUSTRIAL AND SECURITY APPLICATIONS**

*V.T. Nimje*

## **Section-2 Beam Dynamics**

**LOW ENERGY BEAM TRANSPORT FOR HIGH CURRENT INJECTOR**

*A. Mandal, Sarvesh Kumar, C.P. Safvan, G. Rodrigues and D. Kanjilal*

**DESIGN OF NEW LOW ENERGY ION BEAM FACILITY AT INTER UNIVERSITY ACCELERATOR CENTRE**

*Sarvesh Kumar, P. Kumar, P.S. Lakshmy, G. Rodrigues, C.P. Safvan, A. Mandal and D. Kanjilal*

**MAGNETIC FIELD TOLERANCES OF DIPOLE AND QUADRUPOLE MAGNETS FOR A 1GEV PROTON SYNCHROTRON**

*Amalendu Sharma, P.K.Goyal, A.D.Ghodke and Gurnam Singh*

**ESTIMATION OF BEAM ENVELOPE IN THE CENTRAL REGION OF A HIGH CURRENT COMPACT CYCLOTRON**

*A. Goswami, P. Sing Babu and V. S. Pandit*

**BEAM TRANSMISSION IN BEAM TRANSFER LINE-3 (TL-3) FOR INDUS-2 STORAGE RING**

*R.S. Saini, A.D. Ghodke and Gurnam Singh*

**QUADRUPOLE TO BPM OFFSET DETERMINATION IN INDUS-2**

*Saroj Jena, A.D. Ghodke and G. Singh*

**SPACE CHARGE EFFECTS IN A DOUBLE DRIFT BEAM BUNCHER**

*P. Sing Babu, A. Goswami and V. S. Pandit*

**OPTIMIZATION STRATEGY OF TRANSFER LINE – 2 FOR CTF – 3**

*Abdurrahim, Amalendu Sharma, A.D. Ghodke and Gurnam Singh*

**EFFECT OF QUADRUPOLE FRINGE FIELDS ON THE TUNE OF INDUS-2**

*Pradeep Kant, Riyasat Husain, A.D. Ghodke and Gurnam Singh*

**CLOSED ORBIT CORRECTION SCHEME FOR INDUS-2 USING MICADO AND SVD ALGORITHMS**

*Riyasat Husain, A.D. Ghodke and Gurnam Singh*

## **Section-3**

### **Electron and Ion sources**

**IRON ION BEAM DEVELOPMENT FROM 14.4 GHZ ECR ION SOURCE**

*P.Y. Nabhiraj, Ranjini Menon, Mou Chatterjee, Suman Guha, Anurag Misra, C. Mallik and R.K. Bhandari*

**ION ENERGY SPREAD STUDIES FOR COMPACT ICP ION SOURCE**

*Ranjini Menon, P.Y. Nabhiraj and R.K. Bhandari*

**PERIODIC PLASMA DISTURBANCE IN ECR ION SOURCES**

*G.S. Taki, P.R. Sarma, D.K. Chakraborty, R.K. Bhandari and P.K. Ray*

**EFFECT OF TWO MICROWAVE FREQUENCIES ON ELECTRON CONFINEMENT TIME IN ECR ION SOURCES**

*P.R. Sarma, G.S. Taki and R.K. Bhandari*

**HIGH POWER ION EXTRACTION AND ACCELERATION SYSTEM FOR SST-1 NEUTRAL BEAM INJECTOR**

*M.R. Jana and S.K. Mattoo*

**HIGH INTENSITY ECR PROTON SOURCE DEVELOPMENT FOR LEHIPA-ADS - COMMISSIONING AND OPERATIONAL EXPERIENCE**

*P. Roychowdhury, K.P. Dixit, S.R. Ghodke, P. Saroj, S. Chandan, S. Grarat, V. Yadav, R.B. Chavan and D.P. Chakravarthy*

**DEVELOPMENT OF HIGH INTENSITY ECR ION SOURCE FOR ADS**

*Abhay kumar, Sandip Guha, S.B. Jawale and R.L. Suthar*

**OPERATIONAL EXPERIENCE WITH THE 18 GHz HTS-ECRIS, PKDELIS**

*G. Rodrigues, P.S. Lakshmy, Y. Mathur, U.K. Rao, R.N. Dutt, P. Kumar, A. Mandal, D. Kanjilal and A. Roy*

## **Section-4**

### **RF and Microwave Systems**

**RF TUNING SYSTEM FOR SUPERCONDUCTING CYCLOTRON AT VARIABLE ENERGY CYCLOTRON CENTRE**

*Aditya Mondal, S. Som, Saikat Pal, S. Seth, A.K. Mukherjee, P. Gangopadhyay, J.S. Prasad, P.R. Raj, S.K. Manna, M. Banerjee, K.V. Krishnaiah, S. Maskawade M.S. Saha and S. Biswas*

**DEVELOPMENT EFFORTS ON A 1.3 MW PULSED 352.2 MHZ TEST STAND AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY**

*Purushottam Shrivastava, J.K. Mulchandani, N. Bheema, M. Acharya, V. Rajput, H.G. Singh, C.K. Pithawa and V.C. Sahni*

**DESIGN OF 10 dB S-BAND MULTIHOLE WAVEGUIDE COUPLER**

*Yashwant D. Wanmode, Deodatta Baxy and Purushottam Shrivastava*

**DESIGN, PROTOTYPE DEVELOPMENT AND TESTS OF S-BAND FAST PHASE CONTROL LOOP FOR PULSED RF/MICROWAVE SYSTEMS**

*Deodatta Baxy and Purushottam Shrivastava*

**METHODOLOGY FOR EFFICIENT ANALYSIS OF THE EFFECT OF GEOMETRICAL ERRORS ON RF PARAMETERS OF SC CAVITY**

*Arup Ratan Jana, J.N. Rao, R.S. Sandha and Jishnu Dwivedi*

**ACCURATE ESTIMATION OF ELECTROMAGNETIC PARAMETERS USING FEA FOR INDUS-2 RF CAVITY**

*V. Jain, U.V. Bhandarkar, B. Biswas and C.K. Pithawa*

**DEVELOPMENT OF 75 MHZ, 1 KW RF AMPLIFIER FOR HEAVY ION RFQ ACCELERATOR**

*Sherry Rosily, Manjiri Pande and V.K. Handu*

**FIRST OPERATIONAL EXPERIENCE WITH THE RF SYSTEM OF K500 SUPERCONDUCTING CYCLOTRON AT VARIABLE ENERGY CYCLOTRON CENTRE**

*S. Som, Saikat Pal, A.K. Mukherjee, S. Saha, R.K. Bhandari, P. Gangopadhyay, J.S. Prasad, A. Mondal, S. Seth, P.R. Raj, S.K. Manna, M. Banerjee, K.V. Krishnaiah, S. Maskawade, M.S. Saha and S. Biswas*

**DEVELOPMENT OF AUTOMATED TEST BENCH FOR MEASUREMENT OF THE FIELD DISTRIBUTION IN SINGLE CELL ELLIPTICAL SUPERCONDUCTING CAVITY**

*S.K. Chauhan, S. Raghavendra, S.V. Kokil, D.S. Rajpoot and S.C. Joshi*

**A STUDY OF TUNER SHAPES FOR REENTRANT MULTIBEAM KLYSTRON CAVITIES**

*Ashish Kumar Tiwari, Rajiv Kumar Arora and P.R. Hannurkar*

**RF DESIGN AND CHARACTERISATION OF INDUCTIVE COUPLER FOR NEW INDUS-1 RF CAVITY**

*M. Prasad, Deepak Mishra, Pritam S. Bagduwal, Ramesh Kumar and P.R. Hannurkar*

**RF DESIGN AND CHARACTERISATION OF INDUS-1 RF CAVITY**

*M. Prasad, Deepak Mishra, Pritam S. Bagduwal and P.R. Hannurkar*

**EFFECTS OF TEMPERATURE AND HOM PLUNGER ON HIGHER ORDER MODES OF INDUS-2 RF CAVITY**

*M. Prasad, Deepak Mishra and P.R. Hannurkar*

**120 KW CAVITY COMBINER FOR INDUS-2**

*R.K. Deo, M.K. Jain and P.R. Hannurkar*

**RF COUPLER DEVELOPMENT FOR LEHIPA**

*Rajesh Kumar, Piyush Jain, S.V.L.S. Rao, Manish Kumar, P.K. Biswas, S. Guha, S.B. Jawale, P.K. Nema and P. Singh*

**PIC SIMULATION OF RF INTERACTION STRUCTURE OF KLYSTRON**

*Rajiv Kumar Arora, Ashish Kumar Tiwari and P.R. Hannurkar*

**DIPOLE STABILIZER RODS FOR 400 keV DEUTERON RFQ**

*V.L.S. Rao Sista, S.C.L. Srivastava, Rajni Pande, Shweta Roy and P. Singh*

**RESONANT FREQUENCY TRACKING SYSTEM**

*Gopal Joshi, P. Singh, Girish Kumar and Vivek Agarwal*

**MECHANICAL DESIGN AND FABRICATION OF INPUT COUPLER AND SENSING LOOP COUPLER FOR INDUS-I RF CAVITY**

*Ramesh Kumar, Ajay Kak, M. Prasad and P.R. Hannurkar*

**RF POWER MEASUREMENT IN SYNCHROTRONS: UNCERTAINTIES AND THEIR REMEDIES**

*Ashish Bohrey, Mahendra Lad and P.R. Hannurkar*

**PERFORMANCE OF THE FREQUENCY TUNING SYSTEMS FOR INDUS-2 RF CAVITIES**

*Ashish Bohrey, Mahendra Lad and P.R. Hannurkar*

**SYNCHRONIZATION OF RF FIELDS OF INDUS 2RF CAVITIES FOR PROPER INJECTION AND ACCELERATION OF BEAM**

*Nitesh Tiwari, Pritam S. Bagduwal, Mahendra Lad and P.R. Hannurkar*

**DESIGN AND DEVELOPMENT OF 6MW PEAK, 25KW MEAN POWER WR-284 WAVEGUIDE LINE COMPONENTS**

*Yashwant D. Wanmode, Abhay Bhisikar and Purushottam Shrivastava*

**OPERATIONAL EXPERIENCE OF THE SUPERCONDUCTING LINAC BOOSTER AT MUMBAI**

*B. Srinivasan, Vandana Nanal, R.G. Pillay, T. Basak, J.N. Karande, Sudheer Singh, P. Dhupal and M.S. Pose*

## **Section-5**

### **Magnet Design and Technology**

**MECHANICAL AND MAGNETIC MEASUREMENT OF QUADRUPOLE TRIPLETS FOR EXTERNAL BEAM LINE OF K500 CYCLOTRON**

*U. Bhunia, J. Pradhan, J. Debnath, S. Paul, A. Dutta, A. Agarwal, Md. Z.A. Naser, M.K. Dey, Md. H. Rashid, G. Sinha, C. Mallik, and R.K. Bhandari*

**DEVELOPMENT OF MICROWAVE FERRITES and GARNETS FOR PROTOTYPE FERRITE CIRCULATORS AT 352 MHZ and 700 MHZ**

*L. Aditya, M. Ahlawat, S. Senthil Kumar, A.K. Jain and R.S. Shinde*

**MEASUREMENT OF LONGITUDINAL COUPLING IMPEDANCE OF INDUS-2 KICKER MAGNET**

*Prashant Pareek, M. Ahlawat and R.S. Shinde*

**FILTER MAGNET DESIGN STUDY FOR H<sup>-</sup> ION SOURCE**

*Ajeet Kumar and V.K. Senecha*

**CUSP LEAK WIDTH COMPUTATION AND OPTIMIZATION FOR H<sup>-</sup> ION SOURCE**

*Ajeet Kumar and V.K. Senecha*

**DEVELOPMENT OF 90° MASS ANALYZING MAGNET FOR CHARGE ANALYSIS**

*S. K. Jain, Ritesh Malik, K. Sekar, and P.R. Hannurkar*

**DEVELOPMENT AND CHARACTERIZATION OF ALUMINUM STRANDED WATER COOLED CONDUCTOR FOR RAPID CYCLING SYNCHROTRON MAGNETS**

*K. Sreeramulu, P.K. Kulshreshtha, Sheshnath Singh, Gautam Sinha, Lakshman Singh, A.C. Thakurta and C.K. Pithawa*

**PULSE FIELD MEASUREMENTS OF DTL QUADRUPOLE MAGNET AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY FOR SNS PROJECT**

*Y.R. Murthy, S.V. Kokil, S.K. Chauhan, S. Raghavendra, G.V. Kane and S.C. Joshi*

**OPTIMIZATION OF DIPOLE MAGNETS IN THE INJECTION LINE OF SUPERCONDUCTING CYCLOTRON THROUGH FIELD MEASUREMENT**

*M.H. Rashid, Md. Z. Naser, U. Bhunia, P. Bahera, S. Ghosh, I. Bomcha, G. Pal, Sarbajit Pal, C. Mallik and R.K. Bhandari*

**DESIGNING AND TESTING OF GLASER LENS FOR FOCUSING LOW ENERGY CHARGED PARTICLE BEAM**

*M.H. Rashid, C. Mallik and R.K. Bhandari*

**DEVELOPMENT OF LARGE SIZE FERRITE TOROIDS FOR FAST MAGNETIC SWITCHING APPLICATIONS IN ACCELERATORS**

*Lakshmikanta Aditya, Senthil Kumar, Karan Singh, P. Pareek and R.S. Shinde*

**INVERSE APPROACH TO DESIGN MAGNETS**

*Gautam Sinha and Gurnam Singh*

**DEVELOPMENT OF VERSATILE DIELECTRIC-CONSTANT MEASUREMENT SYSTEM FOR LOW LOSS FERRITE AND DIELECTRICS**

*M. Ahlawat and R.S. Shinde*

**2D-SIMULATION OF COMBINED FUNCTION QUADRUPOLE/SEXTUPOLE MAGNET FOR EXISTING BOOSTER SYNCHROTRON**

*Vanshree Thakur, R.K. Mishra, and G. Singh*

**SKEW QUADRUPOLE IN SEXTUPOLE MAGNETS FOR INDUS2**

*Gautam Sinha, S.P. Mhaskar, Gurnam Singh and B.P. Mandal*

**STUDY OF SUPERCONDUCTING WIRE MOTION IN MAGNETIC FIELD**

*K. Ruwali, A. Yamanaka, Y. Teramoto, K. Nakanishi and K. Hosoyama*

**DESIGN OF NEW DIPOLE MAGNET FOR THE EXISTING BOOSTER SYNCHROTRON AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY**

*S. Das, Vanshree Thakur, R.K. Mishra and G. Singh*

**AC DIPOLE MAGNET FABRICATION and CHARACTERIZATION FOR SPECTROSCOPY WORK AT BHABHA ATOMIC RESEARCH CENTRE**

*Ritesh Malik, R.K. Mishra, K. Shekar, S.S. Prabhu, G. Singh and A.K. Jain*

**DIPOLE MAGNET FABRICATION and CHARACTERIZATION FOR CLIC TEST FACILITY AT CERN**

*K. Shekar, Ritesh Malik, R.K. Mishra, S.S. Prabhu, G. Singh and A.K. Jain*

## **Section-6**

### **Beam Diagnostics**

**EXPERIMENTAL DETERMINATION OF BEAM LOSS POINT IN TRANSPORT LINE-2 OF INDUS ACCELERATOR COMPLEX**

*M.K. Nayak, Vipin Dev, P.K. Sahani, Dimple Verma, G. Haridas, K.K. Thakkar, P.K. Sarkar, Gurnam Singh and D.N. Sharma*

**DEVELOPMENT OF MULTI-FUNCTIONAL BEAM DIAGNOSTIC DEVICE FOR TRANSFER LINE TL-1 OF INDUS-1**

*R.S. Sandha, S.G. Goswami, J. Dwivedi, A.C. Holikatti, T.A. Puntambekar, A. M. Gupta, K. Saifee, P. Fatnani, S.D. Sharma, V. Bhatnagar, A.K. Jain, R. Sridhar and S.K. Shukla*

**X-RAY BEAM POSITION MONITOR ON INDUS-2**

*V.P. Dhamgaye, G.S. Lodha, S.R. Kane and V.K. Raghuvanshi*

**A SETUP FOR MEASUREMENT OF BEAM STABILITY AND POSITION USING POSITION SENSITIVE DETECTOR FOR INDUS-1**

*R.K. Nathwani, D.K. Joshi, Y. Tyagi, R.S. Soni, T.A. Puntambekar and C.K. Pithawa*

**THICKNESS OPTIMIZATION AND ACTIVITY INDUCTION IN BEAM SLIT MONITOR FOR INDUS**

*V.C. Petwal, R. Pramod, Jishnu Dwivedi and V.K. Senecha*

**FPGA BASED BEAM PROFILE MONITOR DIGITIZER**

*J.A. Gore, S.G. Kulkarni, A.K. Gupta, P.V. Bhagwat, R.K. Choudhury and S. Kailas*

**DEVELOPMENT OF A NEW FOIL POSITIONING MECHANISM**

*Q.N. Ansari, P.V. Bhagwat, A.K. Gupta and R.K. Choudhury*

**TUNE DEPENDENT BEAM PARAMETER MEASUREMENTS IN INDUS-2**

*Riyasat Husain, A.D. Ghodke and Gurnam Singh*

**SOFTWARE FOR ONLINE TUNE MEASUREMENT SYSTEM FOR INDUS-2 ACCELERATOR**

*S. Yadav, Y. Tyagi, T.A. Puntambekar and C.K. Pithawa*

**MICROCONTROLLER BASED FOUR-CHANNEL CURRENT READOUT UNIT FOR BEAM SLIT MONITOR**

*A.C. Holikatti, T.A. Puntambekar and C.K. Pithawa*

**BEAM PROFILE and BEAM SIZE MEASUREMENT IN TRANSPORT LINE -1 IN INDUS ACCELERATOR COMPLEX USING FLUORESCENT SCREEN BEAM PROFILE MONITORS**

*Y. Tyagi, T.A. Puntambekar and C.K. Pithawa*

## **Section-7**

### **Accelerator Control Systems**

**MICROCONTROLLER BASED TWO AXIS MICROTRON BEAM EXTRACTION SYSTEM**

*H. Ashoka, M. Jathar, V. Meshram and Nageswara Rao*



**EPICS BASED CONTROL SYSTEM FOR INDUS- 1 ACCELERATOR**

*Prachi Chitnis and Pravin Fatnani*

**DESIGN AND DEVELOPMENT OF POWER METERING SYSTEM FOR PULSED MICROWAVE SIGNALS**

*P. Mohania, D. Baxy and P. Shrivastava*

**OPERATION AND INTERLOCK OF VERTICAL INJECTION LINE VACUUM SYSTEM FOR SUPERCONDUCTING CYCLOTRON**

*Suman Guha, R.C. Yadav, Manas Dutta, Mou Chatterjee, Prosenjit Majumdar, P.Y. Nabhiraj, C. Mallik and R.K. Bhandari*

**DEVELOPMENT OF MICROCONTROLLER BASED REMOTE CONTROL SYSTEM FOR HV POWER SUPPLY OF ECR ION SOURCE FOR ADSS PROJECT**

*S. Srivastava, A. Misra, S.K. Thakur, H.K. Pandey and V.S. Pandit*

**CONTROL AND MONITORING SYSTEM FOR INTERNAL BEAM DIAGNOSTICS FACILITY OF SCC**

*Niraj Chaddha, R.B. Bhole, Tanushyam Bhattacharjee, Anindya Roy, Sarbajit Pal and D. Sarkar*

**VACUUM CONTROL SYSTEM OF VEC**

*Anindya Roy, R.B. Bhole, D.L. Bandopadhyay, B. Mukhopadhyay, Sarbajit Pal and D. Sarkar*

**INDUS BEAMLINES – SOFTWARE FOR BOOKING AND USAGE TRACKING**

*Swati Chaudhari, Alpna Rajan, Ravindra G. Marathe and Anil Rawat*

**CONTROL AND MONITORING OF EXAFS BEAMLINe OF INDUS-2 AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY REMOTELY FROM BHABHA ATOMIC RESEARCH CENTRE**

*Jitendra Patil, S.S. Tomar, Anil Rawat and Raghunathan Sampathkumar*

**AN ISOLATED REMOTE CONTROL SYSTEM FOR THE HIGH CURRENT ION SOURCE**

*Mou Chatterjee, P.Y. Nabhiraj and V.S. Pandit*

**REDUNDANCY SCHEME FOR MULTI-LAYERED ACCELERATOR CONTROL SYSTEM**

*Amit Chauhan and P. Fatnani*

**INDUS-2 ALARM HANDLING SYSTEM: FROM PERCEPTION TO PRACTICE**

*Bhavna N. Merh and Pravin Fatnani*

**OPERATIONAL EXPERIENCE WITH THE CONTROL SCHEME FOR INTER UNIVERSITY ACCELERATOR CENTRE LINAC BOOSTER**

*B.K. Sahu, J. Antony, D.S. Mathuria, A. Pandey, S. Ghosh, K. Singh and Ajithkumar B.P.*

**INDUS-2 COMPUTER CONTROLS – PAST, PRESENT AND FUTURE**

*P. Fatnani, K. Barpande, Y. Sheth, R.K. Agrawal, A. Chauhan, K. Saifee, R.P. Yadav, A.M. Gupta, B. Mehr, P. Gothwal, Sampa G., M. Seema, M. Janardhan, N. Lulani, B.S.K. Srivastava, A. Prabhu, V.C. Parate, J.P. Jidee, Sanjai Kumar, V.K. Gupta, S. Sanga, A. Francis, T.V Satheesan, P. Pawanarkar, Hemant K., H. Vaishnav and S. Kar*

**SEARCH AND SECURE SYSTEM FOR LINAC AT TATA INSTITUTE OF FUNDAMENTAL RESEARCH**

*Catarina Rozario, Q.N. Ansari, S.M. Powale, S.K. Sarkar and R.G. Pillay*

**RF SUPERVISORY SYSTEM FOR INDUS-2 RF SYSTEM**

*Deepak Kumar Sharma, Akhilesh Jain and P.R. Hannurkar*

**FPGA BASED VME BOARDS FOR INDUS-2 TIMING CONTROL SYSTEM**

*Nitin Lulani, K. Barpande, P. Fatnani and Y. Sheth*

**DESIGN OF SUPERVISORY CONTROL SYSTEM FOR FEL**

*P.P. Deshpande, Lalita Jain, V.P. Bhanage, M.A. Ansari and C.P. Navathe*

**INDUS-2 BEAM LINE FRONT END CONTROLS USING REAL TIME OPERATING SYSTEM**

*Pankaj Gothwal, R.P. Yadav, M. Seema and P. Fatnani*

**INDUS-1 LCW PLANT CONTROL SYSTEM USING RECONFIGURABLE LOGIC AND TIMED INTERLOCK BYPASS**

*Rishi Pal Yadav and P. Fatnani*

**RECONFIGURABLE DATA PARSER MODULE FOR INDUS-1 LCW PLANT CONTROL SOFTWARE**

*Rishi Pal Yadav, P. Fatnani and Anshuman Choubey*

**SCADA SOFTWARE FOR CUTE-FEL**

*Shradha Tiwari, P.P. Deshpande, V.P. Bhanage and C.P. Navathe*

**DESIGN OF FPGA BASED CAMAC OUTPUT REGISTER**

*S.G. Kulkarni, J.A. Gore and P.V. Bhagwat*

**DESIGN OF FPGA BASED CAMAC DAC MODULE**

*S.G. Kulkarni, J.A. Gore and P.V. Bhagwat*

**MICRO- CONTROLLER BASED FIBER OPTIC DATA TELEMETRY SYSTEM FOR THE ION SOURCE OF LOW ENERGY ACCELERATOR FACILITY AT BHABHA ATOMIC RESEARCH CENTRE**

*Sapna Padmakumar, Shailaja V. Ware, N.B.V Subrahmanyam, J.P Bhatt, S.K Singh, S.K Gupta, P. Singh and R.K. Choudhury*

## **Section-8**

### **Vacuum Systems for Accelerators**

**DEVELOPMENT AND UHV QUALIFICATION OF ALUMINIUM ALLOY VACUUM CHAMBERS FOR TRANSPORT LINE-2 OF CTF-3, CERN**

*B.K. Sindal, P.K. Yadav, K.K. Malviya, K.V.A.N.P.S. Kumar, Tripti Bansod, S.K. Tiwari, A.S. Yadav, H.K. Sharma, N.J. Bhange, D.Y. Deokar, P. Bhatnagar, V.G. Sathe, Sujata P. Joshi, R. Shridhar and S.K. Shukla*

**RGA STUDIES ON ALUMINIUM CHAMBERS FOR TRANSPORT LINE-2 OF CLIC FACILITY AT CERN**

*K.V.A.N.P.S.Kumar, Tripti Bansod, B.K. Sindal, S.K. Tiwari, P.K. Yadav and S.K. Shukla*

**A NEW GAS STRIPPER SYSTEM FOR 14 UD BHABHA ATOMIC RESEARCH CENTRE-TATA INSTITUTE OF FUNDAMENTAL RESEARCH PELLETRON ACCELERATOR FACILITY: INSTALLATION AND PRELIMINARY RESULTS**

*S.C. Sharma, N.G. Ninawe, Ramjilal, M.L. Yadav, M. Ekambaram, Q.N. Ansari, U.V. Matkar, R.L. Lokare, Ramlal, A.K. Gupta, and P.V. Bhagwat*

## **Section-9**

### **Magnet Power Supplies**

**DESIGN AND DEVELOPMENT OF HV POWER SUPPLY WITH CROWBAR PROTECTION FOR SCREEN ELECTRODE OF RF AMPLIFIER**

*Yashwant Kumar, J.S. Prasad, S.K. Thakur, T.P. Tiwari and S. Saha*

**HIGH VOLTAGE OF INFLECTOR POWER SUPPLY FOR THE INFLECTOR OF K-500 SUPERCONDUCTING CYCLOTRON**

*Manoranjan Das, Sudhanshu Srivastava and Samit Bandyopadhyay*

**BIPOLAR SWITCH-MODE CONVERTER FOR X-Y STEERING MAGNET FOR THE INJECTIONLINE OF THE K-500 SUPERCONDUCTING CYCLOTRON**

*Samit Bandyopadhyay, Kaushik Dutta, Sudhanshu Srivastava and Manoranjan Das*

**TETRODE BIAS POWER SUPPLY FOR INDUS-1, SYNCHROTRON RADIATION SOURCE**

*A. Tripathi, M.K. Badapanda, R. Tyagi, R. Upadhyay, A. Bohrey and P.R. Hannurkar*

**OPTIMIZED CONTROL STRATEGY FOR CROWBARLESS SOLID STATE MODULAR POWER SUPPLY**

*R. Upadhyay, M.K. Badapanda, A. Tripathi, P.R. Hannurkar and C.K. Pithawa*

**TRIGGERED SPARK GAP BASED CROWBAR SYSTEM FOR INDUS-2 SYNCHROTRON RADIATION SOURCE**

*M.K. Badapanda, R. Upadhyay, R. Tyagi and P.R. Hannurkar*

**CROWBAR PROTECTION SYSTEM FOR 350 MHz TETRODE AMPLIFIER**

*Sandip Shrotriya, Manjiri Pande and V.K. Handu*

**FILAMENT POWER SUPPLY FOR 1 MW, 352.21 MHz KLYSTRON**

*Sandip Shrotriya, Manjiri Pande and V.K. Handu*

**HIGH STABILITY BIPOLAR CURRENT POWER SUPPLY FOR A VARIABLE POLE-GAP DIPOLE MAGNET**

*M.L. Gandhi and A.C. Thakurta*

**A CAPACITOR CHARGING POWER SUPPLY USING SERIES RESONANT TOPOLOGY**

*Y. Kelkar, Y. Raikwar and A.C. Thakurta*

**MODULAR MAGNET POWER SUPPLIES FOR CUTE-FEL BEAMLINE AND PHOTOCATHODE LINAC**

*Mangesh Borage, Trepan Singh, Manohar Koli and Sunil Tiwari*

## **Section-10**

### **Radiation Safety in Accelerators**

**LOW FLUX HEAVY ION SET UP AT PELLETRON ACCELERATOR**

*J.P.Nair, P.Surendran, N.G.Ninawe, H.Sparrow, P.V.Bhagwat and S.Kailas*

**DEVELOPMENT OF STANDARDS FOR THE MEASUREMENT OF SYNCHROTRON RADIATION**

*A.K. Mahant, Sunil Kumar Singh and Vinatha S. Panyam*

**EXPERIMENTAL EVALUATION OF THE RADIOLOGICAL CONDITION OF HRVUV BEAM LINE OF INDUS-1 SRS AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY**

*Dimple Verma, M.K. Nayak, Vipin Dev, P.K. Sahani, G. Haridas Nair, K.K. Thakkar, P.K. Sarkar and D.N. Sharma*

**SIMULATION OF ELECTRON, POSITRON AND BREMSSTRAHLUNG SPECTRUM GENERATED DUE TO ELECTROMAGNETIC CASCADE BY 2.5GeV ELECTRON HITTING LEAD TARGET USING FLUKA CODE**

*P.K. Sahani, G. Haridas, Vipin Dev, K.K. Thakkar, Gurnam Singh, P.K. Sarkar and D.N. Sharma*

**NEUTRON DOSIMETRY WITH LINEAR ENERGY TRANSFER (LET) AND THE PROTON RECOIL TRACK COUNTING METHOD**

*R.G. Sonkawade, R.V. Kolekarb, Satyan, S. Ghodke, U.V. Phadnis, and K. Kant*

**ESTIMATION OF INDUCED RADIOACTIVITY IN ACCELERATOR DRIVEN SYSTEMS BY 250 MEV PROTONS**

*Maitreyee Nandy, Chirashree Lahiri and P.K. Sarkar*

**SAFETY ASPECTS OF INDUS-1 and INDUS-2**

*D.S. Thakur, R.G. Marathe and Gurnam Singh*

**GENERATION OF OZONE AND SAFETY ASPECTS IN AN ACCELERATOR FACILITY OF BHABHA ATOMIC RESEARCH CENTRE**

*Praveen Dubey, Aparna R. Sawatkar, A.P. Sathe, K.S.S. Sarma and S. Soundararajan*

**INDUS-2 MACHINE SAFETY INTERLOCK SYSTEM – FROM DESIGN TO COMMISSIONING**

*P. Gothwal, A.M. Gupta, B. Mehr, P. Fatnani, H. Vaishnav and T.V. Satheesan*

**Section-11**  
**Radioactive Ion Beams**

**<sup>9</sup>Be BEAM PRODUCTION, ACCELERATION AND RELEASE ESTIMATION AT BARC-TIFR PELLETRON ACCELERATOR FACILITY**

*A.K.Gupta, R.M.Kale, N. Mehrotra, P.N.Bhat, S.Soundararajan, A.Shanbag,  
D.D.Thorat, P.V.Bhagwat and R.K.Choudhury*

**Section-12**  
**Superconducting Technology**

**SUPERCONDUCTING NIOBIUM RESONATOR FABRICATION AT INTER UNIVERSITY ACCELERATOR CENTRE**

*P.N. Prakash, S.S. K.Sonti, K.K. Mistri, J. Zacharias, A. Rai, D. Kanjilal and A. Roy*

**INITIAL WORK ON ELECTRON BEAM WELDING OF 1.3 GHZ SINGLE CELL PROTOTYPE CAVITY and THEIR PROCESS VALIDATION EFFORTS**

*Manish Bagre, Tilak Maurya, Ajay Yedle, Diwakar Sharma, Vikas Jain, Avinash Puntambekar, N. Bheema and P. Shrivastava*

**TESTING and EVALUATION OF HIGH TEMPERATURE SUPERCONDUCTOR CURRENT LEADS**

*Anand Yadav, M.A. Manekar and Avinash Puntambekar*

**RESIDUAL RESISTIVITY RATIO MEASUREMENT OF NIOBIUM**

*Anand Yadav, M.A. Manekar and Avinash Puntambekar*

**DOUBLE WEDGE TUNER (DWT) FOR RF CAVITIES**

*Ramnik Singh, Aravind T, J.V. Singh, V.K. Mishra,, A.K. Sinha and R.L. Suthar, P. Singh and V.C. Sahni*

**HIGHER ORDER MODE (HOM) ANALYSIS OF 350 MHz REENTRANT SUPERCONDUCTING CAVITY**

*Deepak Mishra and M. Prasad*

**COMMISSIONING AND OPERATION OF SUPERCONDUCTING LINAC AT INTER UNIVERSITY ACCELERATOR CENTRE**

*S. Ghosh, R. Mehta, G.K. Chowdhury, A. Rai, P. Patra, B.K. Sahu, A. Pandey, D.S. Mathuria, J. Chacko, A. Chowdhury, S. Kar, S. Babu, M. Kumar, S.S.K. Sonti, K.K. Mistry, J. Zacharias, P.N. Prakash, T.S. Datta, A. Mandal, D. Kanjilal and A. Roy*

**DESIGN AND DEVELOPMENT OF SUPERCONDUCTING QUADRUPOLE DOUBLET FOR HYBRID RECOIL MASS ANALYSER (HYRA) AT INTER UNIVERSITY ACCELERATOR CENTRE**

*T.S. Datta, J. Chacko, A. Choudhury, S. Kar, J. Gehlot, T. Varughese, S. Nath and N. Madhavan*

**SCRF PROGRAM AT BHABHA ATOMIC RESEARCH CENTRE**

*K.C. Mittal, A.S. Dhavale, S.R. Ghodke, S. Nayak, J. Mondal, A. Roy and V.V. Marathe*

**IMPROVEMENTS TO CRYOGENIC SYSTEM OF THE TATA INSTITUTE OF FUNDAMENTAL RESEARCH-BHABHA ATOMIC RESEARCH CENTRE SUPERCONDUCTING LINAC BOOSTER**

*S.S. Jangam, R.D. Deshpande, S.R. Sinha, J.N. Karande, P. Dhumal and R.G. Pillay*

## **Section-13**

### **Linear Accelerators**

**IMPROVED CATHODE ASSEMBLY FOR ELECTRON GUN OF 7 MeV LINAC**

*Madhu. A. Toley, S.J. Shinde, S.A. Nadkarni, T. Mukherjee, and S.K. Sarkar*

**DESIGN OF MICROWAVE COUPLER FOR 10 MEV ELECTRON LINEAR ACCELERATOR**

*P.K. Jana, Purushottam Shrivastava and Nita S. Kulkarni*

**RF CAVITY DESIGN OF 352.2 MHz, 3 MeV RFQ**

*Rahul Gaur, P.K. Jana and Purushottam Shrivastava*

**ERROR ANALYSIS ON A 352.2 MHz, 3 MeV RFQ**

*Rahul Gaur and Purushottam Shrivastava*

**BEAM DYNAMICS DESIGN AND ANALYSIS OF 3 MeV RFQ OPERATING AT 352.2 MHz**

*Rahul Gaur, P.K. Jana and Purushottam Shrivastava*

**GEOMETRICAL OPTIMIZATION STUDIES ON 10 MEV, 352.2 MHz DRIFT TUBE LINAC**

*Nita S. Kulkarni and Purushottam Shrivastava*

**RF MEASUREMENTS AND CHARACTERIZATION OF LINAC CAVITY USING AN AUTOMATED BEAD PULL MEASUREMENT SYSTEM**

*T.K. Mandi, H.K. Pandey, S. Basak, A. Bandyopadhyay and A. Chakrabarti*

**ELECTROMAGNETIC DESIGN STUDY OF RFQ**

*N. Mehrotra, A.K. Gupta, P.V. Bhagwat and R.K. Choudhury*

**RF STRUCTURE MEASUREMENT and RF SYSTEM OF THE 3.4 M LONG RFQ FOR VEC-RIB PROJECT**

*H.K. Pandey, S. Dechoudhury, V. Naik, T. K. Mandi and A. Chakrabarti*

**RF STRUCTURE DESIGN AND LOW POWER RF MEASUREMENTS FOR FOUR- GAP RE-BUNCHER CAVITY OF VEC-RIB**

*H.K. Pandey, S. Dechoudhury, V. Naik, T. K. Mandi and A. Chakrabarti*

**STUDY OF EXTRACTION ELECTRODE GEOMETRY FOR 30 mA, 50 keV ECR PROTON SOURCE USING IGUN SOFTWARE**

*S.K. Jain and P.R. Hannurkar*

**PRELIMINARY RF TEST ON THE 1.17M PROTOTYPE RFQ AT INTER UNIVERSITY ACCELERATOR CENTRE**

*Sugam Kumar, C.P. Safvan, R. Ahuja, A. Kothari, R.V. Hariwal, D. Kanjilal and A. Roy*

**IR FEL INJECTOR SIMULATIONS**

*Arvind Kumar*

**SEARCH METHOD OPTIMIZATION TECHNIQUE FOR THERMAL DESIGN OF HIGH POWER RFQ STRUCTURE**

*N.K. Sharma and S.C. Joshi*

**BEAM OPTICS AND RESONATOR DESIGN FOR THE 97 MHZ DTL AT INTER UNIVERSITY ACCELERATOR CENTRE**

*Ajith Kumar and R.E. Laxdal*

**DEVELOPMENT OF COMPACT SIZE DEUTERON ACCELERATOR**

*Basanta Kumar Das and Anurag Shyam*

**DESIGN STUDIES OF A 650 MeV PROTON LINAC FOR MPRR**

*Rajni Pande, Shweta Roy, V.L.S. Rao Sista, P. Singh, P.K. Nema and R.K. Choudhury*

**FREQUENCY ANALYSIS and FIELD STABILIZATION FOR THE LEHIPA DTL**

*Shweta Roy, S.C.L. Srivastava, Rajni Pande, V.L.S. Rao Sista, S. Krishnagopal and P. Singh*

**A COMPACT RFQ LINAC BASED PULSED NEUTRON SOURCE**

*A.K. Singh, T.S. Selvakumaran, R. Baskaran, S.V.L.S. Rao and P. Singh*

**DESIGN AND DEVELOPMENT OF 400KEV RFQ ACCELERATOR**

*Abhay kumar, Sandip Guha, S.B. Jawale and R.L. Suthar*

## **Section-14**

### **Microtrons**

**UPGRADE OF MICROWAVE SYSTEM AND EFFORTS FOR GENERATION OF VARIABLE PULSE WIDTH ELECTRON BEAM FROM 20MEV PRE-INJECTOR MICROTRON FOR INDUS COMPLEX**

*Purushottam Shrivastava, P. Mohania and J.K. Mulchandani*

**3D ELECTROMAGNETIC SIMULATION STUDY OF RF CAVITY OF 20 MEV INJECTOR MICROTRON**

*P.K. Jana and Purushottam Shrivastava*

**SIMULATION AND MODELLING OF EMISSION PROCESS IN MICROTRON WITH TYPE II CAVITY**

*Rishi Pal Yadav, P. Fatnani and P.V. Varde*

## **Section-15**

### **Cyclotrons**

**SUPERCONDUCTING CYCLOTRON DEFLECTOR CONDITIONING STATUS - AN EXPERIENCE WITH HIGH VOLTAGE**

*Subhash Ghosh, Subrata Chattopadhyay, Tanushyam Bhattacharjee, Anirban De, Santanu Paul, Gautam Pal, Subimal Saha, C. Mallik and R.K. Bhandari*

**3D ELECTRO-MAGNETIC FIELD SIMULATIONS FOR CYCLOTRON DESIGN**

*Atanu Dutta, M.K. Dey, A. Duttagupta, Manir Ahmed, C. Mallik, J. Chowdhury and R.K. Bhandari*

**BEAM TUNING PARAMETERS FOR THE KOLKATA SUPERCONDUCTING CYCLOTRON**

*J. Debnath, M.K. Dey S. Paul, J. Pradhan, U. Bhunia, A. Dutta, Md. Z.A. Naser, M.H. Rashid, C. Mallik and R.K. Bhandari*

## **Section-16**

### **DC Accelerators**

**OPTIMIZATION OF BEAM PARAMETERS OF ELECTRON GUN FOR 2.5 MeV/100 kW HIGH POWER INDUSTRIAL ACCELERATOR**

*Pramod R, V.C.Petwal and Jishnu Dwivedi*

**EFFECT OF THICKNESS OF FOIL STRIPPERS IN TRANSMISSION OF BEAMS THROUGH PELLETRON ACCELERATOR**

*S. Ojha, Pankaj Kumar, S. Gargari, R. Joshi, Abhilash, D. Kabiraj and S. Chopra*



**COMMISSIONING EXPERIENCES ON HIGH VOLTAGE GENERATOR OF 750 KEV DC ACCELERATOR AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY, INDORE**

*R. Banwari, A. Kasliwal and T. G. Pandit*

## **Section-17**

### **Free Electron Lasers**

**DEVELOPMENT OF IN-VACUUM MIRROR SYSTEM, COMPACT MAGNETS AND UNDULATOR BEAM LINE FOR CUTE-FEL**

*B. Biswas, S. Lal and V. Kumar*

**FREE ELECTRON LASER GAIN WITH VARIABLY POLARIZING HARMONIC UNDULATOR**

*Mona Gehlot and G. Mishra*

## **Section-18**

### **Applications of Accelerators**

**TUNING OF ELECTRICAL PROPERTIES OF CDSE NANOCRYSTAL THIN FILMS PREPARED BY CHEMICAL BATH DEPOSITION UPON 7 MEV ELECTRON BEAM IRRADIATION**

*S.J. Shinde, Madhu Toley, M.C. Rath, S.A. Nadkarni, S.K. Sarkar and T. Mukherjee*

**LARGE SCALE PRODUCTION OF NANOFILTER**

*Y.K. Vijay, P.V. Bhagwat, Rashi Nathawat and J.P. Nair*

**ELECTRON BEAM PROCESSING OF INDUSTRIAL POLYMER MATERIALS FOR HIGH TEMPERATURE APPLICATIONS**

*K.S.S. Sarma and S.A. Khader*

**EFFECT OF PULSED ELECTRON BEAM ON CELL KILLING**

*Santhosh Acharya, Praveen Josepha, Ganesh Sanjeev, Y. Narayana and N.N. Bhat*

**HIGH PRECISION MIRROR ALIGNMENT MECHANISM FOR USE IN SYNCHROTRON RADIATION BEAMLINES**

*Adu Verma, P.K. Srivastava, Suraj Das and Mogali Nookaraju*

**DEVELOPMENT OF IMAGE ACQUISITION AND ANALYSIS SOFTWARE FOR ACCELERATOR APPLICATIONS**

*Y. Tyagi, S. Yadav, T.A. Puntambekar and C.K. Pithawa*

**PERFORMANCE AND APPLICATIONS OF 8/12 MEV VARIABLE ENERGY MICROTRON AT MANGALORE UNIVERSITY**

*Ganesh Sanjeev, Purushottam Shrivastava, J.K. Mulchandani, Y. Sheth and J. Dwivedi*

**DEFORMATION OF MICRO AND NANO MECHANICAL STRUCTURES UNDER HIGHLY FOCUSED INTENSE ION BEAMS**

*Sarvesh K. Tripathi, Neeraj Shukla and Vishwas N. Kulkarni*

**Section-19**  
**Other Related Topics**

**DEVELOPMENT OF A SINGLE-SHOT PULSED POWER SUPPLY FOR A SOLENOID PRODUCING MAGNETIC FIELD TO GUIDE A PULSED ELECTRON BEAM**

*Ajay Kumar, Neeraj Goyal, M.V. Rajesh, S.C. Bapna, Rajesh Barothiya, A.C. Thakurta, Lalit Gupta, Y. Choyal and K.P. Maheshwari*

**DETERMINATION OF <sup>36</sup>Cl/Cl RATIO IN GROUND WATER USING THE ACCELERATOR MASS SPECTROMETRY TECHNIQUE**

*Suman Sharma, A.S. Deodhar and U. Saravana Kumar, P. Surendran, A. Shrivastava, A.K. Gupta, J.P.Nair, M.L. Yadav, M. Hemalatha, H. Sparrow, K. Mahata, R.G. Thomas, P. V. Bhagwat, S. Kailas and R.M. Kale*

**DEVELOPMENT OF PROTOTYPE COMPACT COMPOUND MOTION PRECISION JACKS FOR POSITIONING OF SMALL ACCELERATOR COMPONENTS**

*K. Sreeramulu, P.K. Kulshreshtha, Lakshman Singh and C.K. Pithawa*

**RHODIUM PLATING OVER STAINLESS STEEL STUB OF RADIO FREQUENCY SHIELD FOR INDUS-2**

*A.P. Singh, B.Q. Khattak, P. Ram Sankar and A.K. Jain*

**TREATMENT OF COMPLEX ELECTROPLATING WASTE BY “ZERO DISCHARGE” TECHNIQUE**

*B.Q. Khattak, P. Ram Sankar and A.K. Jain*

**MAPPING OF FEEDBACK VOLTAGE GENERATED BY GENERATING VOLT METER WITH ITS LINEAR AND ANGULAR VARIATIONS WITH RESPECT TO THE HEMISPHERICAL HV SOURCE**

*A. Kasliwal, R. Banwari and T.G. Pandit*

**MEASUREMENT OF WIRE SAG AND WAVE VELOCITY IN THE PULSED WIRE SETUP**

*Sumit Tripathi, Mona Gehlot, Jeevakhan Hussain, G. Mishra, Vinit Kumar and Sanjay Chouksey*

**PROPOSED PULSED WIRE SETUP FOR UNDULATOR FIELD CHARACTERIZATION**

*Mona Gehlot, G. Mishra, Sanjay Chouksey, Umesh Kale, Vinit Kumar and Pravin Nerpagar*

**MONO-ENERGETIC, LOW DIVERGENCE, HIGH ENERGY ELECTRON BEAM BY LASER WAKE-FIELD ELECTRON ACCELERATION AT RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY**

*B.S. Rao, A. Moorti, P.A. Naik, S.R. Kumbhare, and P.D. Gupta*

**DEVELOPMENT OF A BRAZING TECHNIQUE FOR 1.6 CELL, BNL/SLAC/UCLA TYPE PHOTOCATHODE GUNS BY HYDROGEN BRAZING**

*Ajay Kak, P.K. Kulshreshtha and Shankar Lal*

**DISTANCE CALIBRATION FACILITY AT ALIGNMENT LAB RAJA RAMANNA CENTRE FOR ADVANCED TECHNOLOGY**

*R.K. Sahu, Vijendra Prasad, M. Jagannath, D. Barapatre and K.P. Sharma*