

TECHNICAL REPORTS (TR) 2020-21

Cleaning of Cesium RF Negative Ion Source ROBIN

KAUSHAL PANDYA, M. J. SINGH and ARUN CHAKRABORTY

IPR/TR-570/2020 (May 2020)

EPICS Based Control and Monitoring Scheme using Beckhoff Automation Hardware

ARNAB DAS GUPTA, HITESH KUMAR GULATI and AMIT KUMAR SRIVASTAVA

IPR/TR-571/2020 (May 2020)

Computer Simulation of SiO₂ Etching in C₂F₆ Plasma Process using CHEMKIN

H. L. SWAMI and R. SRINIVASAN

IPR/TR-572/2020 (June 2020)

Characterisation of 16-channel IF Receiver System for ECE Radiometer at Aditya Upgrade

VARSHA. S, S. K. PATHAK

IPR/TR-573/2020 (June 2020)

Preliminary Design of 200W at 4.5K Cryogenics Plant Data Acquisition and Control System

V. B. PATEL, PRIYADARSHINI GADDAM, HARESH DAVE, A. K. SAHU and KIRTI Mahajan

IPR/TR-574/2020 (June 2020)

Hydrogen in Structural Steel and its Reduction for Application in UHV Systems

SAMIRAN MUKHERJEE, PARESH PANCHAL, JYOTI SHANKAR MISHRA, RANJANA GANGRADEY, PRATIK NAYAK and VISHAL GUPTA

IPR/TR-575/2020 (June 2020)

Signal Estimation and Measurement for the Reflectometry Diagnostic at IPR

JJU BUCH, V. RAULJI, PRAVEENLAL E. V., RACHANA RAJPAL and S. K. PATHAK

IPR/TR-576/2020 (July 2020)

Automation of Upgraded NBI Cooling Water System

KARISHMA QURESHI, PARESH PATEL, LAXMI NARAYAN GUPTA, DIPAL THAKKAR, C. B. SUMOD, VIJAY VADHER and UJJWAL BARUAH

IPR/TR-577/2020 (July 2020)

Design and Development of 15kV, 30A Series Connected IGBTs Switch for Tetrode Based HPA3 Stage of ICRH Amplifier

BHAVESH R. KADIA, KIRIT PARMAR, H. M. JADAV, S. V. KULKARNI and SUNIL KUMAR

IPR/TR-578/2020 (July 2020)

Implementing Private Cloud-based File Storage and Collaboration System

SHARAD JASH and PRASHANT KUMAR

IPR/TR-579/2020 (July 2020)

Standard Operating Procedure for Diesel Generator Sets

CHIRAG B. BHAVSAR, C. K. GUPTA, PRAKASH PARMAR and SUPRIYA NAIR

IPR/TR-580/2020 (July 2020)

Inhouse Development and Performance Test of Pressure Relief Valve for High Vacuum System

PARESH PANCHAL, SAMIRAN MUKHERJEE and RANJANA GANGRADEY

IPR/TR-581/2020 (July 2020)

Design, Fabrication, Testing and Commissioning of Power Supplies and DAC System for Electron Drift Injection System on BETA

BHAVESH R. KADIA, JASRAJ DHONGDE, P. PRASAD RAO, TUSHAR RAVAL, ANKUR JAISWAL, YUVAKIRAN PARAVASTU, SIJU GEORGE, UMESH KUMAR, RAJESH KUMAR, Y. S. S. SRINIVAS, SUNIL KUMAR, D. RAJU and E. RAJENDRA KUMAR

IPR/TR-582/2020 (August 2020)

Preliminary Critical Heat Flux Experiments at the High Heat Flux Test Facility
VINAY MENON, MOHIT SHARMA, SAMIR KHIRWADKAR, KEDAR BHOPE, SUNIL BELSARE,
SUDHIR TRIPATHI, NIKUNJ PATEL, MAYUR MEHTA, PRAKASH MOKARIA, TUSHAR PATEL,
RAJAMANNAR SWAMY and KALPESH GALODIYA
IPR/TR-583/2020 (August 2020)

A Study on Benchmarking of Molflow for Ultra High Vacuum (UHV) System
S. AHMED, S. SUNIL and S. MUKHERJEE
IPR/TR-584/2020 (August 2020)

Conceptual Design of Circular Cross-section U-bend MHD Test Mock-up
A. PATEL, S. VERMA, A. PRAJAPATI, A. SARASWAT and R. BHATTACHARYAY
IPR/TR-585/2020 (August 2020)

Structural Analysis, Design and Implementation of Safety Access to High Pressure Helium Gas Storage Vessels
at IPR
RAJIV SHARMA and VIPUL TANNA
IPR/TR-586/2020 (August 2020)

Measurement of Neutral Gas Pressures in a Vacuum Chamber using two Different types of Nude Bayard Alpert
Gauges
PRATIBHA JAKHMOLA, KALPESH R. DHANANI, DILIP C. RAVAL and ZIAUDDIN KHAN
IPR/TR-587/2020 (August 2020)

Measurement of Hydrogen Outgassing Rates for SS 304L Make Chamber and Coupons using RGA and BA
Gauge
SAMIRAN MUKHERJEE, S. SUNIL, PARESH PANCHAL, ATUL PRAJAPATI, RAKESH KUMAR,
ARNAB DASGUPTA, RANJANA GANGRADEY and SUBROTO MUKHERJEE
IPR/TR-588/2020 (August 2020)

Arduino Based Relay Control System with Graphical User Interface (GUI)
A. K. SANYASI
IPR/TR-589/2020 (August 2020)

Sizing and Selection of Vacuum Pump for SMARTEX-C
PRASHANT THANKEY, DILIP RAVAL, ZIAUDDIN KHAN, LAVKESH LACHHVANI and MANU
BAJPAI
IPR/TR-590/2020 (September 2020)

Web-based Data Analytics for Automated Status Monitoring of Experiments in Large Volume Plasma Device
K. KARMUR, R. SUGANDHI, V. SOUMYA, P. K. SRIVASTAVA, A. K. SANYASI, PRABHAKAR
SRIVASTAV, PRASHANT KUMAR and L. M. AWASTHI
IPR/TR-591/2020 (September 2020)

Installation of Current Leads and Fabrication of Bus-bar Joints for PF#3 Coils of SST-1
U.PRASAD, A. PANCHAL, N. KUMAR, P. RAJ, A. GARG, P. BISWAS, H. PATEL, B. PARGHI, P.
VARMORA, K. BHOPE, S. ROY, C. DODIYA, A. MAKWANA, D. KANABAR, H. NIMAWAT, A. BANO,
S. J. JADEJA, F. S. PATHAN, P. THANKEY, R. PANCHAL, G. PURWAR, V. L. TANNA, B. R. DOSHI,
DIPTI SHARMA, R.SRINIVASAN, D. RAJU, MSD, CRYOGENICS and VESD
IPR/TR-592/2020 (September 2020)

Conceptual Design of a Gridded Ion Source System for Applications of Ion Thrusters and Material Research
S. K. SHARMA, B. S. RAWAT, P. BHARATHI, B. CHOKSI, B. SRIDHAR, L. N. GUPTA, D. THAKKAR, V.
PRAHLAD and U. K. BARUAH
IPR/TR-593/2020 (October 2020)

Estimation of Molecular Conductance of Pumping Lines of the SST-1 Vacuum Vessel Using Analytical and
Numerical Methods
PRATIBHA JAKHMOLA and ZIAUDDIN KHAN
IPR/TR-594/2020 (October 2020)

A Technical Report on Mechanical Design and Analysis of Source Chamber Assembly of the Experimental Set Up for PPA Facility in CPP-IPR
AMARENDRA BAISHYA, MANOJ KUMAR GUPTA, TRIDIP KUMAR BORTHAKUR, NIROD KUMAR NEOG and SURAMONI BORTHAKUR
IPR/TR-595/2020 (October 2020)

Insulation of Current Leads and Bus-bar Joints for Superconducting PF-3 Coils of SST-1
NITISH KUMAR, SWATI ROY, UPENDRA PRASAD, DEVEN KANABAR, MAHESH GHATE, CHIRAG DODIYA, YOGENDRA SINGH, MAILA PARMESH, UMESH KUMAR PAL, GAURAV PURWAR, HIREN NIMAVAT, ATUL GARG, R. SRINIVASAN, V. L. TANNA and D. RAJU
IPR/TR-596/2020 (October 2020)

Design and Fabrication of the Test Facility based on the Steady-state Radial Heat Flow Technique to Estimate the Effective Thermal Conductivity of Ceramic Pebble Beds
MAULIK PANCHAL, VRUSHABH LAMBADE, VIMAL KANPARIYA and PARITOSH CHAUDHURI
IPR/TR-597/2020 (October 2020)

FPGA Based Real-time Data Acquisition System for ADITYA-U Heterodyne Interferometry
KIRAN PATEL, UMESH NAGORA, H. C. JOSHI, SURYA PATHAK, K. A. JADEJA, KAUSHAL PATEL, R. L. TANNA and ADITYA-U TEAM
IPR/TR-598/2020 (October 2020)

Design and Development of 100GHz Quadrature Heterodyne Interferometer System at IPR
UMESH NAGORA, KIRAN PATEL and S.K.PATHAK
IPR/TR-599/2020 (October 2020)

Conceptual Design Report on Prototype Development of Pulsed Alternators
RAMBABU SIDIBOMMA, PRASADA RAO P, Y. S. S. SRINIVAS and E. RAJENDRAKUMAR
IPR/TR-600/2020 (October 2020)

Cryocooler Experiment: Phase-2
MILIND PATEL, MAHENDRAJIT SINGH, ARUNKUMAR CHAKRABORTY, KAUSHAL PANDYA, HIMANSHU TYAGI, KARTIK PATEL, HIREN MISTRI, HARDIK SHISHANGIYA, KAUSHAL JOSHI, VUPPUGALLA MAHESH and BHAVESH PRAJAPATI
IPR/TR-601/2020 (November 2020)

Design Verification of Radiation Heat Load on 80K-Cryopump for LIGO
NARESH CHAND GUPTA and GAURAV KUMAR SINGH
IPR/TR-602/2020 (November 2020)

Measurement of Thermal Expansion for Stainless Steel 304, Copper, Aluminium & Brass by Push Rod Dilatometry
AROH SHRIVASTAVA, VRUSHABH LAMBADE and PARITOSH CHAUDHURI
IPR/TR-603/2020 (November 2020)

3D Magnetic Field Analyses of Linear Induction Motor (LIM) for Electromagnetic Launching Applications
ANANYA KUNDU, ANKUR JAISWAL, PRASAD RAO PEDADA, ARVIND KUMAR, Y. S. S. SRINIVAS, VILAS CHAUDHARY, RAMBABU SIDIBOMMA and E. RAJENDRA KUMAR
IPR/TR-604/2020 (November 2020)

Design and Manufacturing of Vacuum Chamber for Outgassing Measurement System (OMS) for LIGO-India Project
RAKESH KUMAR, VIJAY BEDAKIHALE, S. SUNIL, SUBROTO MUKHERJEE and LIGO-DIVISION
IPR/TR-605/2020 (December 2020)

An Upgraded 16-channel Radiometer System at SST-1 for Electron Cyclotron Emission Measurements
VARSHA SIJU and S. K. PATHAK
IPR/TR-606/2020 (December 2020)

Effect of Cold Atmospheric Plasma Jet on Human Gingivobuccal Squamous Cell Carcinoma and Breast Adenocarcinoma Cells: Cold Atmospheric Plasma in Cancer Treatment
KSHAMA PANSARE, AKSHAY VAID, SAURAV RAJ SINGH, RAMKRISHNA RANE, ANAND VISANI, MUKESH RANJAN, C. MURALI KRISHNA and ALPHONSA JOSEPH
IPR/TR-607/2020 (December 2020)

Electron Cyclotron Measurements in Aditya-U Tokamak
VARSHA, S., R. L. TANNA, UMESH NAGORA, JAYESH RAVAL, PRAVEENA SHUKLA, S. K. PATHAK and ADITYA-U TEAM
IPR/TR-608/2020 (December 2020)

Development of New SCADA for 1.3 kW Helium Refrigerator cum Liquefier at 4.5 K
PRADIP PANCHAL, GAURANG MAHESURIA and VIPUL TANNA
IPR/TR-609/2020 (December 2020)

Report on Current Feeder System (CFS) for installation of PF3 Current Leads (CLs) Along with Associated Cryogenic Network towards Producing Shaped Plasma in SST-1
ATUL GARG, H. NIMAVAT, P. SHAH, R. PANCHAL, SRIKANTH L. N., G. PURWAR, P. BISWAS, H. PATEL, F. S. PATHAN, P. THANKEY, D. SONARA, D. CHRISTIAN, A. PANCHAL, N. KUMAR, A. PRAKASH, U. PRASAD, V. L. TANNA, B. R. DOSHI, R. SRINIVASAN and D. RAJU
IPR/TR-610/2021 (January 2021)

Development of Standalone Heater Temperature Control Panel using Solid State Power Controller
ARNAB DASGUPTA, S. SUNIL, AMIT K. SRIVASTAVA and HITESH K. GULATI
IPR/TR-611/2021 (January 2021)

Implementation of Web Information System for Large Volume Plasma Device
V. SOUMYA, R. SUGANDHI, M. JHA, P. K. SRIVASTAVA, A. K. SANYASI, A. ADHIKARI and L. M. AWASTHI
IPR/TR-612/2021 (February 2021)

Test Operations on the High Temperature Vacuum (HTV) Tube Furnace
P. SHARMA, M. ABHANGI and C. JARIWALA
IPR/TR-613/2021 (February 2021)

Initial Lab Test Results of Magneto-Optic Current Sensor Diagnostic Developed for Plasma Current Measurement in Tokamaks
SANTOSH P. PANDYA, KUMUDNI ASSUDANI, PRAVEENLAL E. V., LAVKESH T. LACHWANI, SAMEER KUMAR JHA, M. V. GOPALAKRISHNA and SURYA KUMAR PATHAK
IPR/TR-614/2021 (February 2021)

Case Study of Accidental Scenarios Related to Cryopump and Sizing of its Burst Disc for LI_VISTA (LIGO India Vacuum Integrated System Test Assembly (LI_VISTA))
NARESH CHAND GUPTA, RAKESH KUMAR and ATUL PRAJAPATI
IPR/TR-615/2021 (February 2021)

Upgradation of 82.6GHz ECRH System for SST-1
B. K. SHUKLA, D. RAJU, R. SRINIVASAN, P. K. CHATTOPADHYAY, P. K. ATREY and ARUN K. CHAKRABORTY
IPR/TR-616/2021 (February 2021)

Close Circuit Television: On-The-Fly Artificial Intelligence Monitoring Solution
A. ABHISHEK, A. SHARMA, G. GARG, H. CHUDASMA, D. RAJU and M. SHARMA
IPR/TR-617/2021 (February 2021)

Conceptual Design of Cylindrical Reactive Sputter Coating System
P. A. RAYJADA, N. P. VAGHELA, R. RANE, V. CHAUDHURI and A. SIRCAR
IPR/TR-618/2021 (March 2021)

Fabrication Option for LIGO India Beam Tube for on Site &In-House Testing
ATUL PRAJAPATI, VIJAY BEDAKIHALE, RAKESH KUMAR, S. SUNIL and SUBROTO MUKHERJEE
IPR/TR-619/2021 (March 2021)

Development of Software Interface to Assess Functionalities of General Standards make PCIe based AI/AO Boards

HITESH K. GULATI, ARNAB DASGUPTA and AMIT K. SRIVASTAVA
IPR/TR-620/2021 (March 2021)

Overview of Data Acquisition, Control and Interlocks of 42 GHz ECRH System

HARSHIDA PATEL, JATIN PATEL, DHARMESH PUROHIT, MAHESH KHUSHWAH, K. G. PARMAR,
HARDIK MISTRY and B. K. SHUKLA

IPR/TR-621/2021 (March 2021)

Design, Analysis, and Fabrication of 100kV, 100mA DC Full-Wave Voltage Multiplier (FWVM) Modular Unit
URMIL THAKER, AMARDAS A., AMAL S., KUMAR SAURABH, ARITA CHAKROBORTY, PAUL
CHRISTIAN, ASHOK MANKANI and UJJWAL BARUAH

IPR/TR-622/2021 (March 2021)