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Publications

Contributions Beam Wire Scanners Upgrade

DATE	CONTRIBUTION
2009_06	M. Koujili, B. Dehning, J. Koopman, D. Ramos, M. Sapinski, J. De Freitas. <i>Fast and High Accuracy Wire Scanner</i> . DIPAC 09 Conference 25-27 May 2009 /Basel-CH
2011_05	M. Koujili, Y. Ait-Amirat, B. Dehning, A. Djerdir, J. Emery, J. Herranz. <i>Design of an Actuator for the Fast and High Accuracy Wire Scanner</i> . 2011 IEEE International Electric Machines & Drives Convergence (IEMDC)
2012_04	B. Dehning, J. Emery, J. Herranz Alvarez, M. Koujili, J.L. Sirvent Blasco, <i>Vacuum Actuator and Controller Design for a Fast Wire Scanner</i> . 2012 Beam Instrumentation Workshop (BIW12) April 15-19, Newport News, Virginia (EE.UU)
2012_10	R. Veness, N. Chritin, B. Dehning, J. Emery, J. Herranz Alvarez, M. Koujili, S. Samuelsson, J.L. Sirvent. <i>Design of a High-Precision Fast Wire Scanner for the SPS at CERN</i> . International Beam Instrumentation Conference, IBIC2012, Tsukuba, Japan, Oct 1-4, 2012
2014_10	B. Dehning, J. Emery et al., <i>A fast and accurate wire scanner instrument for the CERN accelerators to cope with high environmental constraints and increasing availability demand</i> , 2014 IEEE Multi-conference on Systems and Control. Antibes/Nice (France)
2014_10	J.L. Sirvent, B. Dehning, J. Emery and A. Dieguez, <i>Secondary Particle Acquisition System for the CERN Beam Wire Scanners Upgrade</i> , (Poster here ↗) TWEPP 2014 Topical Workshop on Electronics for Particle Physics.22-26 September 2014. Aix-en-Provence (France)
2015_09	J.L. Sirvent, B. Dehning, J. Emery, A.Dieguez, <i>High Dynamic Range Diamond Detector Readout System for the CERN's Beam Wire Scanners Upgrade</i> ↗ , (Poster here ↗). IBIC2015, International Beam Instrumentation Conference 2015. 13-17 September 2015. Melbourne (Australia)
2015_09	J. Herranz, B. Dehning, J. Emery, A. Guerrero, C. Pereira, A. Barjau, <i>Wire Scanners and Vibrations - Models and Measurements</i> ↗ (Poster here ↗). IBIC2015, International Beam Instrumentation Conference 2015. 13-17 September 2015. Melbourne (Australia)
2015_09	R. Veness, W. Andreatza, B. Dehning, J. Emery, D. Gudkov, P. Magagnin, E. Piselli, S. Samuelsson, <i>Experience from the Construction of a New Fast Wire Scanner Prototype for the CERN-SPS and its Optimization for Installation in the CERN-PS Booster</i> ↗ (Poster here ↗). IBIC2015, International Beam Instrumentation Conference 2015. 13-17 September 2015. Melbourne (Australia)
2015_09	J. Sirvent, B. Dehning, J. Emery, A. Dieguez, <i>High Dynamic Range Diamond Detector Acquisition System for Beam Wire Scanner Applications</i> ↗ (Poster here ↗) TWEPP 2015 Topical Workshop on Electronics for Particle Physics.28Sept-2Oct 2015. Lisbon (Portugal)
2016_04	A.Barjau, J.Herranz, B.Dehning. <i>Dynamical models of a wire scanner</i> ↗ . ASME. J. Vib. Acoust. 2016; (). Doi: 10.115/1.4033568.
2017_04	R.Veness, P.Andersson, W.Andreatza, N.Chritin, B.Dehning, J.Emery, A.Goldblatt, D.Gudkov, F.Roncarolo, J.L. Sirvent, J. Tassan-Viol. <i>Installation and Test of Pre-Series Wire Scanners for the LHC Injector Upgrade Project at CERN</i> ↗ (Poster here). IPAC 2017 International Particle Accelerator Conference, 14-19 May 2017 Copenhagen (Denmark)
2017_05	J. Emery. A. Barjau, B.Dehning, J.Herranz, J.P. Lapray, M. Macchini. <i>Design and validation methodology of the control system for a particle beam size measurement instrument at the CERN laboratory</i> ↗ . 2017 IEEE American Control Conference (ACC). Seattle, WA, USA.
2017_08	J.L. Sirvent, L.Garcia, G.Trad, J.Emery, P.Andersson, F.Roncarolo, W.Andreatza, D.Gudkov, R.Veness, B.Dehning. <i>Performance Assessment of Pre-Series Fast Beam Wire Scanner Prototypes for the Upgrade of the CERN LHC Injector Complex</i> ↗ (Poster here ↗). IBIC 2017 International Beam Instrumentation Conference, 20-24 August 2017 Grand Rapids, Michigan (USA).

2018_11	A.Mariet, R.Veness. <i>Selection of Wires for the New Generation fo Fasat Wire scanners at CERN</i> ↗ . IBIC2018 International Beam Instrumentation Conference, 9-13 Sept 2019, Shangai, China.
2019_04	E. Senes, J.Emery, M. Fraser, A.Guerrero, A.Huschauer, F.Roncarolo, J.L.Sirvent, P. Skowronski, F. Tecker, V.Forte. <i>Transverse Emittance Measurement in the CERN Proton Synchrotron in View of Beam Production for the High-Luminosity LHC</i> ↗ . IPAC 2019 International Particle Accelerators Conference, 19-24 May 2019 Melbourne, Australia.

2014_12	<i>LHC Injectors Upgrade Technical Design Report: Volume 1 Protons.</i> ↗ CERN-ACC-2014-0337
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Contributions Operational Beam Wire Scanners

DATE	CONTRIBUTION
1985_10	J. Bosser, J. Camas, L. Evans, G. Ferioli, R. Hopkings, J. Mann and O. Olsen. <i>Transverse Emittance Measurement with a Rapid Wire Scanner at the CERN SPS</i> ↗ . Nuclear Instruments and Methods in Physics Research A235 (1985) 475-480
1995_03	V. Agoritsas, E. Falk, F. Hoekemeijer, J. Olsfors, Ch. Steinbach. The Fast Wire Scanner of the CERN PS . Geneva Switzerland
1997_03	P. Elmforst, A. Fasso, M. Huhtinen, M. Lindroos, J. Olsfors and U. Raich. <i>Wire Scanners in low energy accelerators</i> ↗ . Nucl.Instrum.Meth. A396 (1997) 13-22
1997_09	J. Bosser, C. Bovet. <i>Wire Scanners for LHC</i> . LHC-Project-Note-108
2003_01	F. Roncarolo, F. Caspers, B. Dehning, E. Jensen, J. Koopman, J.F. Malo. <i>Cavity Mode Related Wire Breaking of the SPS Wire Scanners and Loss Measurements of Wire materials</i> ↗ . PAC 03, Portland, USA, CERN-AB-2003-067-BDI (2003)
2003_06	S. Burger, C Carli, K. Priestnall, U. Raich. <i>The PS Booster Fast Wire Scanner</i> . DIPAC'03, Mainz, Germany, 5 - 7th May 2003
2004_08	G. Arduini, B. Dehning, G. Ferioli, J. Koopman, D. Kramer, F. Roncarolo. <i>Accuracy of Profile Monitors and LHC Emittance Measurements</i> . EPAC 2004 5 - 9 Jul 2004, Lucerne, Switzerland
2005_04	B. Dehning, C. Fisher, J. Koopman, F. Roncarolo. <i>Accuracy of the SPS Transverse emittance Monitors</i> . DIPAC'05 6/8 June 2005 Lyon - FR
2005_08	F. Roncarolo, B. Dehning. Transverse Emittance Blow-up due to the Operation of Wire Scanners, Analytical predictions and measurements . PAC 2005 16 - 20 May 2005, Knoxville, TN, USA
2008_05	M. Sapinski, T. Kroyer. <i>Operational Limits of Wire Scanner on the LHC Beam</i> . BIW08, Tahoe City, California
2009_05	M. Sapinski, B. Dehning, A. Guerrero, J. Koopman, E. Metral. <i>Carbon Fiber Damage in Accelerator Beam</i> . DIPAC'09 Basel, Switzerland, 25 - 27 May 2009
2009_06	J.Koopman, A.G. Ollacarizqueta, A. Likhovitskiy. <i>Fast Wire Scanner Calibration</i> . DIPAC 09 Conference 25-27 May 2009 /Basel-CH
2010_09	B. Dehning, A. Guerrero, T. Kroyer, M. Meyer, M. Sapinski. <i>Carbon Fiber Damage in Particle Beam</i> . HB2010 27 Sep - 1Oct 2010, Morschach, Switzzeland.
2011_05	J. De Freitas, B. Dehning, J. Emery J. Herranz, M. Koujili, D. Ramos, M. Sapinski, Y. Ait-Amira A. Djerdit. <i>Test Measurements of a 20ms-1 Carbon Wire Beam Scanner</i> . DIPAC'11 16 - 18 May 2011, Hamburg, Germany
2011_09	M. Sapinski, F. Cerutti, B. Dehning, J. Emery, et al,. <i>LHC Magnet Quench test with beam loss generated by wire scan</i> . IPAC2011 4-9 Sep 2011. San Sebastian, Spain.
2011_09	B. Salvant, W. Andreatza, F. Caspers, A. Grudiev, J. Herranz, E. Metral, G. Rumolo. <i>Simulations of the impedance of the new PS wire scanner tank</i> . IPAC 2011 4-9 Sep 2011.
2012_04	M. Sapinski. <i>Beam Interaction with Thin Materials: Heat Deposition, Cooling Phenomena and Damage</i> ↗ <i>Limits</i> ↗ . 2012 Beam Instrumentation Workshop, (Newport News, Virginia, USA)
2012_12	M. Kuhn, G. Arduini, J. Emery, A. Guerrero, W. Hofle, V. Kain, F. Roncarolo, M. Sapinski, M. Schaumann, R. Steinhagen. <i>LHC Emittance Preservation During the 2012 Run</i> , LHC Beam Operation Workshop- Evian 2012
2013_03	

	M. Kuhn et al., <i>Investigations of the LHC emittance blow-up during the 2012 proton run</i> ↗ , Proc of IPAC2013, Shangai, China, pp. 1394-1396, (2013)
2013_09	G. Baud, B. Dehning, J. Emery, JJ. Gras, A. Guerrero, E. Piselli. <i>Performance Assessment of Wire-Scanners at CERN</i> . IBIC2013 Oxford, UK, 16 - 19 Sep 2013, pp.TUPF03
2014_06	G. Sterbini, B. Dehning, S. Gilardoni, A. Guerrero. <i>Beam-Based measurements of the CPS Wire Scanner</i> ↗ . 5th International Particle Accelerator Conference, Dresden, Germany
2014_09	O.E. Berring, F.Caspers, B.Dehning, J.Emery, M.Hamani, J.Kuczerowski, E.Piselli, B.Salvant, R.Sautier, R.Veness, C.Vollinger, C.Vuitton, C. Zannini. CERN-SPS Wire Scanner Impedance and Wire Heating Studies . (Poster Here ↗)IBIC 2014 Conference Monterey-CA/USA from 14 to 18 September 2014
2015_09	M. Kuhn, F. Antoniou, E. Bravin, B. Dehning, V. Kain, A. Langner, Y. Papahyilippou, E. Piselli, G. Trad. <i>First LHC Emittance Measurements at 6.5 TeV</i> ↗ (Talk here ↗). Proceedings of IBIC2015, Melbourne, Australia.

Theses

DATE	AUTHOR	TITLE
2005	F.Roncarolo	<i>Accuracy of the Transverse Emittance Measurements of the CERN Large Hadron Collider</i>
2007	S.E Forde	Wire Scanner Motion Control Card
2012	M.Koujili	Design and Construction of a new actuator for the LHC Wire Scanner
2012	J.L.Sirvent	Design of an optical fibre based angular position sensor for wire scanners complying with ultra-high vacuum, high temperature and radiation conditions of the CERN's accelerators
2013	S.Samuelsson	Mechanical Optimization of a high-precision Fast Wire Scanner at CERN
2013	K.Henzer	Resolver Data Processing for the Wire Scanner
2014	K.Florek	Ethernet High Speed with a SOC Based FPGA for the Wire Scanner
2014	C.Grosjean	Motor and Break Design for the Wire Scanner
2015	M.Macchini	Motion Control Design of a PMSM and FPGA implementation for the Beam Wire Scanner at CERN
2016	J.Herranz	Minimisation of the Wire Position Uncertainties of the New CERN Vacuum Wire Scanner ↗
2016	M.Kuhn	Transverse Emittance Measurement and Preservation at the LHC ↗
2017	C.Vulliez	<i>Protocole Serie Point a Point Generique et modulable</i> ↗
2017	Y.Zhang	<i>Wire Scanner for the Large Hadron Collider</i> (presentation here)
2017	L.Garcia	<i>Performance Assessment of pre-series Beam Wire Scanner Prototypes for the LHC Injectors Upgrade</i> ↗
2018	J.L. Sirvent	<i>Beam Secondary Shower Acquisition Design for the CERN High Accuracy Wire Scanner</i> ↗ (presentation here ↗)

Reports [↗](#)

DATE	REPORT
2006_03	G. Arduini, C. Carli, K. Hanke, S. Gilardoni et al., <i>Measurement of the Transverse Beam Distribution in the LHC Injectors</i> ↗ . Functional Specification. EDMS Id.772786
2007_03	M. Sapinski. <i>Estimation of Wire Scanner Impact on Downstream Magnets</i> . CERN CH-1211 Geneva 23, Switzerland
2008_04	T. Kroyer. <i>Simulation of Wire Scanner Heating by the Electromagnetic field of a particle beam</i> . CERN-AB-Note-2008-018
2008_07	M. Sapinski. <i>Model of Carbon Wire Heating in Accelerator Beam</i> . CERN CH-1211 Geneva 23, Switzerland
2009_11	

	M. Sapinski. <i>Estimation of Radiation Damage to Wire Scanner Carbon Fiber on PS Beam</i> . EDMS 1028351
2009_09	M.Sapinski. <i>Carbon Wire heating in PS and PS2 beams</i> ? . EDMS 1020260
2009_11	E. Bravin, A. Boccardi, B. Dehning, J. Emery et al., <i>LHC Transvers Profile Monitors Studies</i> (MD on May 6th, 2011). CERN-ATS-Note-2011-049 MD
2012_08	M. Sapinski. <i>SEM Observation along the C Fibre and its tip morphology after the break in SPS</i> . EMDS 1239761
2013_03	A.Lechner. <i>LHC Beam Wire Scanner: Dose and Particle spectra in the Vicinity of the Beam pipe</i> . CERN CH-1211 Geneva 23, Switzerland
2014_08	P. Vester. <i>Program development for the modelling of carbon wire heating by particle beams</i> . CERN--Note-2014-001
2017_05	L Lacny, M. Guinchard. <i>BWS Calibration Bench Vibration Measurements</i> . Engineering department (EN) CERN.

Misc. Technical Documentation

DATE	Document
2016_02	J.L. Sirvent. PSB Optical Position Sensor: Technical Specifications . Internal Note.
2016_01	D.Glaude. <i>Beam Wire Scanner Optical Disk 3 Alu Metrological Results</i> . Internal Note.
2016_01	D.Glaude. <i>Beam Wire Scanner Optical Disk 4 304L Metrological Results</i> . Internal Note.
2015_12	J.L. Sirvent. <i>SPS Optical Position Sensor Alignment Procedure</i> . Internal Note.

EDMS Documentation

DATE	DOCUMENT
2019_06	J.F. Comblin. Functional Specifications for New PSB Wire Scanners . ? (EDMS 2172411) Functional Specifications
2019_03	W.Andreazza. New Rotatable Beam Wire Scanner Installation in the SPS Ring ? . (EDMS 1969742) Engineering Change Request
2018_05	W.Andreazza. New Rotatable Beam Wire Scanner Installation in the PS Ring ? . (EDMS 1962139). Engineering Change Request
2018_07	W.Andreazza. New Rotatable Beam Wire Scanners Installation in the PS Booster . ? (EDMS 1962159). Engineering Change Request
2015_10	J.Emery. <i>Beam Wire Scanner Control, Monitoring and supplies part</i> ? . (EDMS 1318827) Engineering Specification
2016_06	J.Emery. <i>Beam Wire Scanner Data and Events Digital Link Specification</i> ? . (EDMS 1701798) Technical Specification
2016_09	W.Andreazza, D.Gudkov, R.Veness. <i>New Rotatable Beam Wire Scanner Prototype Installation in the PS Booster</i> ? . PSB-BWSRA-EC-0001 (EDMS 1704838) Engineering Change Request

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