

Claudio Bruschini - List of Publications (updated Feb. 2005)

Articles

C. Bruschini, 'On the Low Frequency EMI Response of Coincident Loops over a Conductive and Permeable Soil and Corresponding Background Reduction Schemes', *IEEE Geoscience and Remote Sensing*, vol. 42, No. 8, Aug. 2004, pp. 1706-1719.

C. Bruschini, 'Commercial systems for the Direct Detection of Explosives for Explosive Ordnance Disposal Tasks', *Subsurface Sensing Technologies and Applications* 2(3), pp. 301-338, July 2001 (<http://www.wkap.nl/journalhome.htm/1566-0184>).

See also reference [Bruschini01] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, 'Metal Detectors in Civil Engineering and Humanitarian Demining: Overview and Tests of a Commercial Visualizing System', *INSIGHT – Non-Destructive Testing and Condition Monitoring* 42(2), pp. 89-97, February 2000 (<http://www.bindt.org/>).

See also reference [Bruschini98] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, B. Gros, 'A Survey of Current Sensor Technology Research for the Detection of Landmines'. Published in **Sustainable Humanitarian Demining: Trends, Techniques and Technologies**, Mid Valley Press, Verona, VA, USA, Dec. 1998, pp. 172-187 (hdic@jmu.edu).

Published as 'A Survey on Sensor Technology for Landmine Detection' in the **Journal of Humanitarian Demining**, Issue 2.1, February 1998.

Available online at <http://maic.jmu.edu/journal/2.1/home.htm>.

C. Bruschini, 'Evaluation of a Commercial Visualizing Metal Detector for UXO/Mine Detection: the HILTI Ferroskan System'.

Published in **Sustainable Humanitarian Demining: Trends, Techniques and Technologies**, Mid Valley Press, Verona, VA, USA, Dec. 1998, pp. 314-325 (hdic@jmu.edu).

C. Bruschini, B. Gros, F. Guerne, P.-Y. Pièce, O. Carmona, 'Ground penetrating radar and imaging metal detector for antipersonnel mine detection'.

Published in **Journal of Applied Geophysics** 40 (1998) 59-71. Special Issue: GPR'96, ed. by M. Sato and R. Versteeg.

G. D. Barr et al. (NA48 Collaboration), 'Performance of an electromagnetic liquid krypton calorimeter based on a ribbon electrode tower structure', CERN-PPE-95-064, April 1995.

Published in **Nucl. Instr. Methods Phys. Res., A** 370 (1996) 413-424.

M. Adamovich et al. (WA92/BEATRICE Collaboration), 'Measurement of the Beauty Production Cross-Section in 350 GeV/c Pi-Cu Interactions', CERN-EP-98-019, Feb. 1998.

Published in **Nucl. Phys. B** 519 (1998) 19-36.

M. Adamovich et al. (WA92/BEATRICE Collaboration), 'A study of kinematical correlations between charmed particles produced in pi-Cu interactions at $\sqrt{s} = 26$ GeV', CERN-PPE-96-108, July 1996.

Published in **Physics Letters B** 385 (1996) 487-492.

M. Adamovich et al. (WA92/BEATRICE Collaboration), 'WA92: a fixed target experiment to trigger on and identify Beauty particle decays', CERN-PPE-96-066, May 1996.

Published in **Nucl. Instr. Methods Phys. Res., A** 379 (1996) 252-270.

M. Adamovich et al. (WA92/BEATRICE Collaboration), '*Search for the decay $D_0 \rightarrow \mu^+ \mu^-$* ', CERN-PPE-95-071, May 1995.

Published in **Physics Letters B 353** (1995) 563-570.

M. Adamovich et al. (WA92/BEATRICE Collaboration), '*Study of Charm Correlations in $\pi^- N$ Interactions at $\sqrt{s} \sim 26 \text{ GeV}$* ', CERN-PPE-94-214, December 1994.

Published in **Physics Letters B 348** (1995) 256-262.

A. Beer et al., '*The Beauty Contiguity Trigger of the BEATRICE experiment: detector, readout and processor overview*', CERN-ECP-93-3, June 1993.

Published in **Nucl. Instr. Methods Phys. Res., A: 337** (1994) 280-294.

C. Baldanza et al., '*Results from a MA16 based neural trigger in an experiment looking for Beauty*', University of Bologna report DFUB 95/14 (1995).

Published in **Nucl. Instr. Methods Phys. Res., A: 376** (1996) 411-419.

C. Baldanza et al., '*Results from an on-line non-leptonic neural trigger in an experiment looking for Beauty*', University of Bologna report DFUB 94/16 (1994).

Published in **Nucl. Instr. Methods Phys. Res., A: 361** (1995) 506-518.

Other Articles

K. De Bruyn, M. Barais, H. Sahli, C. Bruschini, J. Wtorek, '*EUEM2: Overview and Some Early Findings*'.

Published in the **Journal of Mine Action**, Mine Action Information Center at James Madison University, Issue 7.2, pp. 92-95&103, 2003.

Available online at <http://maic.jmu.edu/journal/7.2/index.htm>.

K. de Bruyn, C. Bruschini, H. Sahli, J. Cornelis, '*EUEM: The European Union in Humanitarian Demining*'.

Published in the **Journal of Mine Action**, Mine Action Information Center at James Madison University, Issue 4.1, Spring 2000, pp. 4-7,73.

Available online at <http://maic.jmu.edu/journal/4.1/index.htm>.

Presentations at Conferences

High Energy Physics (WA92/BEATRICE Collaboration)

M. Adamovich et al. (WA92/BEATRICE Collaboration), '*Trigger for the WA92 Fixed Target Beauty Experiment*', Presented by J. Batten at the '4th International Conference on Advanced Technology and Particle Physics', Como, Italy, October 1994, Imperial College preprint IC/HEP/94-12.

Published in **Nucl. Phys. B (Proc. Suppl.): 44** (1995) 435-440.

C. Bruschini et al., '*The Beauty Contiguity Trigger of the BEATRICE experiment*', Presented by G. Darbo at the 'IEEE Nuclear Science Symposium', Orlando, FLA, U.S.A, 25-31 Oct. 1992, p. 320 (conf. Proc.).

C. Bruschini et al., '*The Beauty Contiguity Processor of the BEATRICE experiment*', Presented by P. Martinengo at the '1992 Conference on Computing in High Energy Physics (CHEP'92)', Annecy, France, 21-25 Sept. 1992, CERN 92-07, pp. 234-238 (conf. Proceedings).

M. Adamovich et al. (WA92/BEATRICE Collaboration), '*WA92: A fixed target experiment to study Beauty in hadronic interactions*', Presented by B. Osculati at 'Heavy Flavours, Third Topical Seminar', San Miniato, Italy, 17-21 June 1991.

Published in **Nucl. Phys. B (Proc. Suppl.)** 27 (1992) 251-256.

High Energy Physics (Neural Networks)

C. Baldanza et al., '*Results from a neural trigger based on the MA16 microprocessor*', Presented by R. Odorico at the '4-th International Workshop on Software Engineering, Artificial Intelligence and Expert Systems for High Energy and Nuclear Physics', Pisa, Italy, 4-8 April 1995 (conf. Proceedings).

Published in **Int. J. Mod. Phys., C: 6** (1995) 567-572.

C. Baldanza et al., '*An on-line non-leptonic neural trigger applied to an experiment looking for Beauty*', Presented by R. Odorico at the 'XXIXth Rencontres de Moriond, QCD and High-energy Hadronic Interactions', Meribel, France, 19-26 March 1994, p. 555 (conf. Proceedings).

Published in similar form in **Int. J. Mod. Phys., C : 5** (1994) 863-870.

High Energy Physics/Parallel Processing (GP-MIMD2 Project)

I. Apostolakis et al., '*General Purpose Parallel-Computing in a High-Energy Physics Experiment at CERN*', Presented by P. Calafiura at 'High Performance Computing and Networking in Europe 1996 (HPCN'96)', Brussels, Belgium, April 1996, pp. 251-257 (conf. Proceedings).

L. M. Bertolotto et al., '*Feasibility studies for a High Energy Physics MC program on Massive Parallel Platforms*', Presented by L. M. Bertolotto at 'Computing in High Energy Physics 1994 (CHEP'94)', San Francisco, California, U.S.A., 21-27 April 1994, pp. 374-378 (conf. Proceedings).

I. Apostolakis et al., '*First Results from the Parallelisation of CERN's NA48 Simulation Program*', Presented by C. Bruschini at 'High Performance Computing and Networking in Europe 1994 (HPCN'94)', Munich, Germany, 18-20 April 1994, Vol. 1, pp. 371-376 (conf. Proceedings).

Sensors for Landmine Detection/Humanitarian Demining

C. Bruschini, '*Metal Target Discrimination with a Commercial Two Frequency Sensor—Part I: Raw Data Analysis in the Complex Plane*', presented by C. Bruschini, 'Proc. EUDEM2-SCOT International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO', Brussels, Belgium, Sept. 15-18 2003.

C. Bruschini, L. van Kempen, J. Lochy, '*Metal Target Discrimination with a Commercial Two Frequency Sensor—Part II: Quantitative Aspects*', presented by C. Bruschini, 'Proc. EUDEM2-SCOT International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO', Brussels, Belgium, Sept. 15-18 2003.

P. Szyngiera, C. Bruschini, Z. Filus, '*3D EMI Trajectories for the Visualisation of Metal Object Properties*', presented by P. Szyngiera, 'Proc. EUDEM2-SCOT International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO', Brussels, Belgium, Sept. 15-18 2003.

K. De Bruyn, M. Barais, H. Sahli, C. Bruschini, J. Wtorek, 'EUDEM2: The European Union in humanitarian DEMining. State-of-the-art on Humanitarian Demining Technologies, Products, Services and Practices in Europe', presented by J. Wtorek, 'Proc. First National Conference on Information Technology', Gdansk, Poland, May 18-21, 2003. Published in "Scientific Papers of Electronics, Telecommunication and Informatics Faculty (GUT)", ISBN 83-917681-2-0, no 2, pages 597-604.

C. Bruschini, H. Sahli, 'Target discrimination using a commercial differential two frequency metal detector—Part I: Raw data analysis', presented as poster, SPIE Conf. 5089, Detection and Remediation Technologies for Mines and Minelike Targets VIII', SPIE AeroSense 2003, Orlando, FLA, USA, April 21-25 2003.

C. Bruschini, L. van Kempen, J. Lochy, 'Target discrimination using a commercial differential two frequency metal detector—Part II: Feature extraction and classification opportunities', presented as poster, SPIE Conf. 5089, Detection and Remediation Technologies for Mines and Minelike Targets VIII', SPIE AeroSense 2003, Orlando, FLA, USA, April 21-25 2003.

C. Bruschini, H. Sahli, 'Phase angle based clutter reduction and 2D Imaging using data from a commercial differential two frequency EMI system', presented by C. Bruschini, 'Proc. Euro EM 2000 (EuroElectromagnetics)', Edinburgh, Scotland, 30 May - 2 June 2000.

Extended abstract and slides available online as reference [Bruschini00c] at <http://diwww.epfl.ch/lami/detec/>.

V. Cattin, C. Bruschini, A. Guiga, J.M. Ittel, J.M. Léger, J.C. Vidal, 'Landmine Detection System with NMR Gradiometer', presented by V. Cattin, 'Proc. Euro EM 2000 (EuroElectromagnetics)', Edinburgh, Scotland, 30 May - 2 June 2000.

Extended abstract available online as reference [Cattin00] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, H. Sahli, 'Phase angle based EMI object discrimination and analysis of data from a commercial differential two frequency system', presented by H. Sahli as poster, 'Proc. SPIE Vol. 4038, Detection and Remediation Technologies for Mines and Minelike Targets V', SPIE AeroSense 2000, Orlando, FLA, USA, April 24-28 2000, paper [4038-156].

Abstract and poster available online as reference [Bruschini00b] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, 'Metal Detectors for Humanitarian Demining: from Basic Principles to Modern Tools and Advanced Developments' (Invited Paper), in 'Proc. MINE'99 (Mine Identification Novelities Euroconference)', pp. 24-30, Florence, Italy, October 1-3, 1999.

Available online as reference [Bruschini99b] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, B. Gros, 'A Survey of Current Sensor Technology Research for the Detection of Landmines', Presented by C. Bruschini at SusDem'97, Zagreb (Croatia), 29 September-1 October 1997, pp. 6.18/6.27 (conf. Proceedings). Available online as reference [Bruschini97a] at <http://diwww.epfl.ch/lami/detec/>.

Published in **Sustainable Humanitarian Demining: Trends, Techniques and Technologies**, Mid Valley Press, Verona, VA, USA, Dec. 1998, pp. 172-187 (contact hdic@jmu.edu).

Published as 'A Survey on Sensor Technology for Landmine Detection' in the **Journal of Humanitarian Demining**, Issue 2.1, February 1998. Available online at <http://maic.jmu.edu/journal/2.1/home.htm>

C. Bruschini, 'Evaluation of a Commercial Visualizing Metal Detector for UXO/Mine Detection: the HILTI Ferroscaan System', Presented by C. Bruschini as poster at SusDem'97, Zagreb (Croatia), 29 September-1 October 1997.

Available online as reference [Bruschini97b] at <http://diwww.epfl.ch/lami/detec/>.

Published in **Sustainable Humanitarian Demining: Trends, Techniques and Technologies**, Mid Valley Press, Verona, VA, USA, Dec. 1998, pp. 314-325 (contact hdic@jmu.edu).

B. Gros, C. Bruschini, '*Sensor Technologies for the Detection of Antipersonnel mines. A survey of current research and system developments*', Presented by B. Gros at the ISMCR'96 conference, Brussels, May 1996, pp. 564-569 (conf. Proceedings).

Available online as reference [Gros96] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, B. Gros, F. Guerne, P.-Y. Pièce, O. Carmona, '*Ground penetrating radar and induction coil sensor imaging for antipersonnel mines detection*', Presented by B. Gros at the GPR'96 conference, Sendai (Japan), 30 September-3 October 1996, pp. 211-216 (conf. Proceedings). Available online as reference [Bruschini96] at <http://diwww.epfl.ch/lami/detec/>.

Published as '*Ground penetrating radar and imaging metal detector for antipersonnel mine detection*' in **Journal of Applied Geophysics** 40 (1998) 59-71. Special Issue: GPR'96, ed. by M. Sato and R. Versteeg.

Sensors for Landmine Detection/Humanitarian Demining – Invited Talks

C. Bruschini (for the EUDEM2 Project), '*Bulk Explosive and Contraband Detection Technologies and Applications*', Invited Presentation at the INFN Legnaro Laboratories, Legnaro, Italy, 7/3/2003.

H. Sahli (for the EUDEM2 Project), '*Present and Future of Humanitarian Demining Research*', presented by H. Sahli, Invited Presentation at the EC 'Concertation meeting for Research and Technological Development projects from the 5th Framework Programme', Brussels, 24/3/2003.

Available online at http://www.eudem.vub.ac.be/eudem_pubs.htm.

C. Bruschini, '*Metal Detectors for Humanitarian Demining: from Basic Principles to Modern Tools and Advanced Developments*' (Invited Paper), in 'Proc. MINE'99 (see above).

C. Bruschini, '*Improvements in a "mature" technology: Metal Detectors*', Invited Presentation at the "Intelligent Sensors and Data Fusion for Humanitarian De-mining" IST Consultation Meeting, 22/9/1999 (within the framework of the preparation of the IST Workplan 2000).

Slides available online as reference [Bruschini99a] at <http://diwww.epfl.ch/lami/detec/>.

C. Bruschini, '*Overview of DeTeC Activities and AP Mine Detection "State of the Art"*', Invited Presentation (slides) at the Brussels ERM (Ecole Royale Militaire) Workshop, 5/12/1996 (within the framework of the start of the Belgian HUDEM project on humanitarian demining).

Available online as reference [Bruschini96] at <http://diwww.epfl.ch/lami/detec/>.

Other Talks – Sensor Networks

E. Charbon, C. Bruschini, Sensor Networks related talk, presented by E. Charbon at the SLF (Swiss Federal Institute for Snow and Avalanche Research), Davos, Switzerland, 12/3/2004.

Reports, Theses, Internal Notes and Other Material

H. Sahli, C. Bruschini, S. Crabbe, 'Catalogue of Advanced Technologies and Systems for Humanitarian Demining'. EUDEM2 Technology Survey Report, Nov. 2004, v1.3, 75 pp. (under release)

E. E. Cepolina, C. Bruschini, K. De Bruyn, 'Field Survey Results'. EUDEM2 Technology Survey Report, Nov. 2004, 49 pp. (under release)

E. E. Cepolina, C. Bruschini, 'Catalogue of Technologies in Field Use'. EUDEM2 Technology Survey Report, Nov. 2004, 33 pp. (under release)

E. Crescenzo, C. Bruschini (Eds.), 'Study of Demining Related R&D in France'. EUDEM2 Technology Survey Report, Nov. 2004, v2.6, 58 pp.

Available online from <http://www.eudem.info/>

F. Bellan, A. Bulletti, L. Capineri, C. Bruschini, '(Non-Linear) Acoustic Landmine Detection Study'. EUDEM2 Technology Survey Report, Nov. 2004, 37 pp.

Available online from <http://www.eudem.info/>

C. Bruschini, 'A Multidisciplinary Analysis of Frequency Domain Metal Detectors for Humanitarian Demining'. **PhD Thesis**, Vrije Universiteit Brussel (VUB, Belgium), Faculty of Applied Sciences, Sept. 2002, 230 pp., ISBN 3-89825-853-X

Available online from <http://www.eudem.info/> and <http://www.dissertation.de/>.

C. Gaudin, C. Sigrist, C. Bruschini, 'Metal Detectors for Humanitarian Demining: a Patent Search and Analysis'. EUDEM2 Technology Survey Report, Nov. 2003, v2.0.

Available online from <http://www.eudem.info/>.

C. Bruschini, 'Commercial Systems for the Direct Detection of Explosives (for Explosive Ordnance Disposal Tasks)' (ExploStudy, Final Report). EPFL-DI-LAP Internal Note, Feb. 2001, 68 pp.

Available online as reference [Bruschini01] at <http://diwww.epfl.ch/lami/detec/>

C. Bruschini, K. de Bruyn, H. Sahli, J. Cornelis, J.-D. Nicoud, 'EUDEM: The EU in Humanitarian Demining - Final Report (Study on the State of the Art in the EU related to humanitarian demining technology, products and practice)', EPFL-LAMI and VUB-ETRO, 30/07/1999.

Available online at <http://diwww.epfl.ch/lami/detec/>, and from <http://www.eudem.info/>.

Published in reduced form as: K. de Bruyn, C. Bruschini, H. Sahli, J. Cornelis, 'EUDEM: The European Union in Humanitarian Demining', the **Journal of Mine Action**, Mine Action Information Center at James Madison University, Issue 4.1, Spring 2000, pp. 4-7,73. Available online at <http://maic.jmu.edu/journal/4.1/index.htm>.

C. Bruschini, 'Metal Detectors in Civil Engineering and Humanitarian Demining: Overview and Tests of a Commercial Visualizing System', EPFL-LAMI, Nov. 1998, 10 pp. Available online as reference [Bruschini98] at <http://diwww.epfl.ch/lami/detec/>.

Published in **INSIGHT – Non-Destructive Testing and Condition Monitoring** 42(2), pp. 89-97, February 2000 (<http://www.bindt.org/>).

C. Bruschini, 'Foerster Documentation Overview':

Part I: 'Matlab Algorithms; Signals and Data Acquisition Format', EPFL-LAMI and VUB-ETRO-IRIS, Apr. 1998, 8 pp.

Part II: '*Metal Detector Test Data*', EPFL-LAMI and VUB-ETRO-IRIS, Apr. 1998, 58 + 6 pp.

Part III: '*2D Deconvolution Tests*', EPFL-LAMI and VUB-ETRO-IRIS, Apr. 1998, 12 pp.

C. Bruschini, D. Cundy and A. Norton, NA48 Note xxx:

Part I: '*Simulation of a Parallel Scheme for the Online Calibration of the NA48 Electromagnetic Calorimeter*', Oct. 1995.

Part II: '*Review of some Calibration Methods for Electromagnetic Calorimeter*', Oct. 1995. 24 pp. tot (Part I and Part II) + figures.

C. Bruschini et al., '*Deliverable 3.1.3.a: Report on Event Simulation on the CS-2*', EU Project P7255 (GP-MIMD2) Internal Report, Feb. 1995, 16 pp.

L. Bertolotto et al., '*Use of the test beam data to improve uniformity of response in the LKr Prototype Calorimeter*', NA48 Note 94-20, March 1994.

C. Bruschini, '*Studio di un Trigger rapido su vertici secondari per la ricerca di particelle dotate di Beauty*' ('*Study of a fast trigger on secondary vertices for the search of Beauty flavoured particles*'), **MSc Thesis**, University of Genova, Italy, 1992.