

RESUME

Dr. Juan Héctor Bianchi, Ph. D., DIC

Date of birth: 4-6-1948

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Country of residence: Italy from 1989

More details in: <http://publicationslist.org/j.h.bianchi>

(a) Main interests:

- (1) Materials Processing. Mechanical Metallurgy of Hot and Cold Metal Forming. Development of target microstructures on industrial plants. Prevention of cracking and defect propagation. Process-Microstructure-Property relationships. Computational Mechanics in Materials Process Modelling. Constitutive, microstructural and damage evolution equations for Process Simulation. Multiscale modelling. Mechanical properties of multiphase materials. Technological support to new products development.
- (2) Structural Integrity and life-cycle of structures and components.

(b) Education:

- Licenciature en Physics, La Plata National University, Argentina, 1974.
- Conversion Course to Metallurgy, Department of Materials, Atomic Energy Commission, Argentina, one full time semester + research work, 1977.
- Ph.D. Thesis in Metallurgy, Imperial College of Science and Technology, London University, 1983. Title: 'Numerical Methods applied to Metallurgical Processing'. Experimental-numerical work on Thermo-Mechanical Processing of Aluminium alloys by hot extrusion. Also courses in Departments of Metallurgy and Materials Science, Mathematics, Mechanical, Civil and Aeronautics Engineering: Mechanical Behaviour of Materials, Solid Mechanics, Physical Processing, Structure and Properties of Metals and Alloys, Physical Metallurgy, Mechanics Applied to Manufacturing, Stress Analysis, Plasticity in Production Processes, Finite Elements, Structural Analysis. Numerical Analysis: Finite Difference, Finite Elements, Tau and Spectral Methods.
- Languages: fluent written and oral Spanish and English; Italian.

(c) Academic jobs:

- Graduated Tutor and Lecturer in Physics, National Universities of La Plata and Salta, 1974-1976.
- Research Assistant, Dept. of Metallurgy, Imperial College, 1983-1986. Grant from ALCOA (USA).
- Tutoring in 'Solids Mechanics', Dept. Metallurgy, Imperial College.
- Research Fellow, School of Polymer Technology, Polytechnic of North London, 1987-1989.

Short courses lectured:

- '*Process Control in Materials Processing*' (invited by Univ. Zaragoza, Spain). 3-days seminar sponsored by the British Council, 1988.
- '*Computer Modelling in Fabrication Processes*' invited by Centro Sviluppo Materiali (Italia), 1989.

External examiner/referee:

- Referee of Research Proposals submitted to Comisión Interministerial de Ciencia y Tecnología de España, 1988.
- Reviewer of Doctoral Thesis, Lic. Jukka Komi, *Hot ductility of austenitic and duplex stainless steels under hot rolling conditions*, Univ. of OULU, Finland, 2001.

(d) Research and Development jobs:

- Development Engineer, Middle Management Grade 3, Rolling Department, BRITISH STEEL (now CORUS UK), Swinden Technology Centre, Rotherham, 1989.
- Quadro Superiore (Senior Researcher), and Scientist in Mechanical Metallurgy, CENTRO SVILUPPO MATERIALI (CSM), Roma, from November 1989.

(e) R&D Projects:

- **3-years projects co-financed by EU and industries. Instigator and co-elaborator of the proposal submitted to tender + institutional project leader + senior researcher during execution:**
 1. *Applications of FEM to Hot Rolling and Deep Drawing*. ECSC Joint Project: CSM-ILVA (Italy), BRITISH STEEL (UK), IRSID (France), ARBED (Luxembourg), ENSIDESA (Spain), CRM (Belgium), RWTH (Germany), Univ. Athens (Greece), 1989-1992. 250KEcu
 2. *Development of a model for hot strip rolling of duplex and non-oriented magnetic steels with a coupling between the thermomechanics and the kinetics of microstructural evolution*. ECSC Joint Project: CSM-ILVA (Italy), CEIT (Spain), 1993-1996. 554 kECU
 3. *Integrated simulation of multipass hot rolling and its application in process control by artificial intelligence*. EU Joint Project COST 512: CSM (Italy), CEIT (Spain), MEFOS (Sweden), Univ. OULU (Finland), 1994-1997.
 4. *The effects of strain reversal and strain-time path on the constitutive relationships for metal rolling/forming processes*. ECSC joint project: BRITISH STEEL (UK), CSM (Italy), CEIT (Spain), MEFOS (Sweden), RAUTAUURUKKI (Finland), 1996-1999. 324 k€

5. *Closer Tolerance rolling by control of loaded roll gap, material speed and temperature.* ECSC Joint Project: BRITISH STEEL (UK), CSM (Italy) and BFI (Germany), 1998-2001. 325 k€
 6. *Control of phase transformation during processing of partially bainitic multi-component strip steels for controlling the work-hardening characteristics.* ECSC Joint Project: THYSSEN-KRUPP (Germany), CSM (Italy), KUNGL T.H. (Sweden), 1998-2001. 450 k€
 7. *Optimisation of long product rolling through improved understanding of roll wear and lubrication.* ECSC Joint Project: CORUS and Univ. of Sheffield (UK), CSM-ORI MARTIN (Italy), BFI/VDEH (Germany) and SIDENOR (Spain). 2001-2004. 333 k€
 8. *Constitutive Modelling for complex loading in Metal Forming Processes.* ECSC Joint Project: CORUS (UK), CSM - ORI MARTIN (Italy), CEIT (Spain), MEFOS (Sweden), OULU University (Finland), FREIBERG University (Germany). 2001-2004. 290 k€
 9. *Control of sheet surface defects and deep drawing properties in final strip production steps.* ECSC Joint Project: IRSID (France), CSM-AST (Italy), CRM (Belgium), BFI-VDEH (Germany). 2002-2005. 365 k€.
 10. *Mechanical property models for high strength complex microstructures.* ECSC Joint Project: CEIT (Spain), CSM (Italy), TKS-FREIBERG University (Germany), CORUS-CAMBRIDGE University (UK), CRM (Belgium). 2003-2007. 198 k€.
 11. *The Prediction and Avoidance of Cracking in Long Product Hot Rolling.* ECSC Joint Project: CORUS, BIRMINGHAM Univ. (UK), CSM and ORI-Martin (Italy), SIDENOR, LABEIN and CEIT-(Spain), IMATRA-University of OULU (Finland), MEFOS (Sweden), ASCOMETAL (France). 2003-2007. 226 k€
 12. *The Prediction and Avoidance of Cracking in Long Product Hot Rolling-Phase 2.* ECSC Joint Project: CEIT (Spain), CSM (Italy), CORUS (UK), SIDENOR(Spain), CEMEF (France). 2009-2012. 325 k€
 13. *Novel Rolling Methods for Advanced High Strength Hot Rolled Steels,* Project RFSR-CT-2008-00023. LABEIN(Spain), CSM(Italy), ARCELOR(Spain), MEFOS(Sweeden), BFI(Germany), Univ. Oulu (Finland), 2008-2011.
- **Recent Industrial projects**
 1. *'Procedures and results for constitutive characterization of a steel grade 014 and additional testing for validations' (2008), 'Feasibility analysis of local rheological approaches to FEM analysis of Hot Rolling processes' (2009), 'Microstructural Modelling: updating of constitutive equations and CSM modelling support' (2010).* TENARIS-Dalmine.
 2. *'Technological assistance for industrialization at HANDAN STEEL (China) of bars for bear and steel wire steels' (2011-2012)*
 - **Other participation in execution of R&D projects (as associated researcher):**
 1. *Development and testing of procedures for optimising the degree of strip reduction during skin pass rolling,* Joint ECSC Project CSM and ILP (Italy), BFI (Germany) and THYSSEN (Germany), 1993-1996.
 2. *'Research on Development of an Extrusion FEM code' and 'Computed-Aided Control of Metallurgical Mechanical Processing'.* ALCOA (USA) -Imperial College (UK) Contracts, 1983-1986.
 3. *Ottimizzazione dei parametri di processo della trafilatura a freddo di tubi mediante analisi agli Elementi Finiti.* Joint Project CSM-Dalmine Costa Volpino, 1992-1993.
 4. *Implementazione de un modello accoppiato resistenza meccanica-evoluzione microstrutturale nell' codice per simulazione de laminazione MPM TUBE3 .* CSM-Dalmine 1994-1995.

(f) Publications

Journals and Congresses:	17
Books (ECSC, <i>Technical Steel Series</i> , co-author)	13
Some of them can be downloaded from:	http://publicationslist.org/j.h.bianchi
Intermediate ECSC and RFSR Research Reports	72
Industrial Reports	12

(g) Membership of professional bodies:

- Beneficiary member of the ECSC (EU) Committees TGS6- D3 (Physical Metallurgy of Rolling and Finishing, from 1990) and TGS4-D1 (Rolling of long products and reheating, from 1998).
- AIM (Assoc. Italiana di Metallurgia)
- Alumni Association of Imperial College (UK)
- Royal School of Mines Association (UK)