



Curriculum Vitae et Studiorum
of Walter Ambrosini

General Data

First Name: Walter

Family Name: Ambrosini

Place and Date of Birth: Pistoia (I), May 6th, 1958

Family: Married with Rosaria Vatteroni, Secondary School Teacher of Mathematics and Physics;
two daughters: Ilaria (born on April 17th, 1991) and Margherita (born on June 30th, 1993)

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Military Service: Performed from January 2nd 1986 to January 1st 1987 in the Italian Air Force

Present Working Position

Qualification: Associate Professor (Professore Associato) at the University of Pisa

Faculty: Facoltà di Ingegneria (Faculty of Engineering)

Department: Dipartimento di Ingegneria Meccanica, Nucleare e della Produzione (DIMNP)

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Studies and Academic Career

- Classical Lyceum in Carrara (I). Leaving examination in 1977 (60/60, i.e., full marks).
- Degree in Nuclear Engineering at the University of Pisa (I) in April 1985 (110/110 'cum laude', i.e., full marks) with a thesis on the relevance of heat conduction during DBAs in LWRs.
- Research Doctorate course at the University of Pisa (Safety of Nuclear Plants) from 1985 to 1988.
- Research Doctor since 1989 with a thesis on the constitutive laws of RELAP5 and CATHARE codes.
- Consultant for University of Pisa through THEMAS s.r.l. from November 1988 to November 1992.
- Researcher (Assistant Professor) in Nuclear Plants at the University of Pisa from November 16th, 1992.
- Confirmation as a Researcher in November 1995.
- Associate Professor in Nuclear Plants from November 2001.

Research Activity

Walter Ambrosini performed research activities in the field of *Nuclear Reactor Safety* since his degree in Nuclear Engineering in 1985. In the following, a summary of the main achievements is reported.

1. Application and validation of codes for safety analysis of nuclear reactors

- studies related to the validation of the CATHARE code
- contribution to the application of the RELAP5 code for the analysis of innovative reactors
- contribution to the evaluation of the accuracy in thermal-hydraulic code calculations;
- application of the RELAP5 code to the thermal-hydraulic benchmarks proposed in the frame of the STORM Project;
- cooperation in the design of experimental tests envisaged in the frame of the Boiling Instability Program (BIP)
- tutorship and contribution to the application of the RELAP5 code to instabilities actually occurred in real plants
- application of RELAP5 to natural circulation experiments performed in the CHEOPE facility, operating with Lead Bismuth Eutectic (for ADS applications);
- application of RELAP5 to natural circulation and gas-injection enhanced circulation experiments performed in a water loop (for ADS applications);

2. Development of models for basic thermal-hydraulic phenomena and plant transients

2.1. Development and application of numerical methods for heat transfer and fluid-dynamic problems

- development of analytical methods for analysing transient conduction in 1D (plane and cylindrical) structures;
- development of a coarse-mesh method for heat conduction in 1D (plane, cylindrical and spherical) structures;
- proposal of an algorithm based on the characteristic form of balance equations for the analysis of 1D flow transients;
- involvement in Computational Fluid-Dynamic (CFD) analyses, of simultaneous heat and mass transfer problems;

2.2. Proposal and application of mechanistic correlations for basic phenomena

- cooperation in setting up a correlation for predicting CCFL at the upper tie plate of fuel elements in nuclear reactors;
- proposal of correlations for film thickness, interfacial shear and drop size in annular flow;
- studies in relation to condensation in the presence of noncondensable gases developed in the frame of contracts with ENEL since 1992 and with the support of the European Community through the INCON Project;

2.3. Development of codes for the analysis of plant transients

- contribution to the development of the FASTRAP code, for fast-running analyses of PWR behaviour;
- development of computer programs in the frame of contracts with ENEL:
 - development of an engineering model for the primary system of AP600 and SBWR to be used in the Integrated FUMO code for containment analysis;
 - development of the ICONA program for the analysis of the behaviour of PCCS in SBWR;
 - development of the thermal-hydraulic module of the ECART code, the ENEL-EdF code for analyses of aerosol transport during severe accidents.

2.4. Models for instabilities in single-phase loops and boiling channels

- cooperation in writing a State-of-the-Art Report on BWR Stability problems, promoted by OECD-CSNI: in particular, W.A. has been co-author with Prof. D'Auria of Chapter 4 of the Report, related to modelling techniques and codes for predicting stability characteristics of BWRs, and actually wrote in person most of it;
- study of chaotic instabilities in single-phase thermosyphon loops in the frame of an ongoing informal cooperation with the Autoridad Regulatoria Nuclear (ARN) of Argentina (Ing. Juan Carlos Ferreri);
- analysis of boiling channels with a methodology similar to the one developed for single-phase thermosyphon loops;
- analysis of heated channels with supercritical fluids and proposal of novel dimensionless parameters suitable for setting up stability maps.

3. *Experimental activities*

- Experimental studies on falling film evaporation (DABASCO Project, 4th Framework Programme);
- Statistical characterisation of falling films
- Experiments on natural circulation and gas-injection enhanced circulation for ADS applications in a water loop
- Experiments on steam condensation in the presence of noncondensable gases

Teaching Activity

W.A. started his teaching activity in 1992, supporting the Courses for the Degree in Nuclear Engineering and, in particular, the Courses of *Thermal-Hydraulics* and *Numerical Methods for Nuclear Reactors*. In particular:

- since the Academic Year 1993-1994, W.A. is lecturing in the Course of *Thermal-hydraulics* (Official Teacher: Prof. F. D'Auria), with cycles of lectures on single-phase fluid mechanics and exercises on two-phase flow subjects;
- in the Academic Year 1997-1998, W.A. performed a cycle of lectures in the frame of the course of *Numerical Methods for Nuclear Reactors* (Official Teacher: Prof. B. Montagnini);
- since the Year 1998-1999, W.A. is the Official Teacher of the Course of *Numerical Methods for Nuclear Reactors*; the program of this one-semester Course is entirely devoted to numerical methods for Reactor Physics, i.e., neutron diffusion and neutron transport;
- since the Year 2001-2003 he teaches the Module of *Thermal-hydraulics* in the joint course of *Thermodynamic and Thermal-hydraulics* at the 2nd year of the Laurea in Sicurezza Industriale e Nucleare;
- since the Year 2004-2005 he teaches the Course of *Numerical Simulation of Energy Systems*;
- W.A. is performing tutorship for students of different Courses for the Degree in Engineering of Industrial Safety (BS Level) , which are given support both during the study of the matters and in developing preparatory works required for the examinations;
- W.A. has been Tutor of several degree theses in Nuclear Engineering, dealing with both Thermal-hydraulics and Reactor Physics;
- W.A. has been Tutor of several 'Semesterarbeit' theses of German students coming from Lehrstuhl A fuer Thermodynamik of the Technische Universitaet Muenchen (TUM) in the frame of the SOCRATES-ERASMUS Project; he is also informally in charge of the organisation of the stages of the ERASMUS students coming to DIMNP;
- W.A. has been Vice-President of the Teaching Board of the Research Doctorate in Nuclear and Industrial Safety (SNI) at the University of Pisa;
- From November 1st 2008 he is President of the Teaching Board of the Research Doctorate in Nuclear and Industrial Safety (SNI) at the University of Pisa.

Refereeing Activity

- W.A. has been in different cases Referee of papers submitted to Conferences and International Journals in the fields of Nuclear Engineering, Heat Transfer and Two-Phase Flow.
- W.A. is Subject Editor for Heat and Mass Transfer for the *Latin American Applied Research Journal*.
- He is currently involved in the evaluation of research projects for the European Union and International Scientific Bodies for aspects related to fundamental and nuclear reactor thermal-hydraulics as well as education in the nuclear field.

Other Professional Achievements

W.A. has been officially licensed to act in Italy as a Professional Engineer by passing the related State Examination in April 1985.

He has been also licensed to teach in Italian Secondary Schools the matters of *Physics* and *Physics, Nuclear Plants and Related Technologies*, by passing specific licensing competitive examinations. In the case of the competitive examination for Physics, he also won the Chair as a teacher in secondary school.

W.A. also applied to public competitive examinations at ENEA and ENEL for Nuclear Engineers, reporting very good qualifications (1st place ex-aequo at ENEA, G.U. of October 15th 1985 - F.I. n. 243; 6th place at ENEL 4/DG/86).

Contracts and Funding Management

Both as a free professional and as a member of University, W.A. has been directly involved or responsible in contracts with government and industrial partners (ENEA, ENEL, EU, etc.).

He has been part of the Scientific Commission No. 09 for distributing ministry funding within the Faculty of Engineering in the years 1998-2000.

He has been and is responsible of contracts with different external bodies (CESI – Ing. Flavio Parozzi; TEA Sistemi – Prof. Paolo Andreussi) for support in researches related to the development of models for thermal-hydraulic phenomena.

Though not responsible, he has been de facto involved in contracts with the European Commission (DABASCO, INCON; SCACEX).

Walter Ambrosini is responsible for the Italian side of a Mobility Contract granted in the frame of the Indo-Italian Program of Cooperation in Science & Technology 2005–2007, MST-10, Thermal Hydraulic Model Development and Validation for Natural Circulation Systems, whose Indian responsible is Mr. D. Saha of the Bhabha Atomic Research Centre (BARC) of Mumbai (Bombay).

He is also responsible for the Italian side of a Mobility Contract granted in the frame of the Executive Protocol of the 12th Joint Commission on S&T Cooperation between the People's Republic of China and the Italian Republic for the Years 2006-2009; the responsible for the Chinese side is Prof. Pei-xue Jiang from the Tsinghua University in Beijing. The program of research is related to “Experimental and computational analyses in support to the design of innovative nuclear reactor concepts”.

He is also responsible for the Inter-University Convention between the University of Pisa and the Shanghai Jiao Tong University (Prof. Xu Cheng).

General List of Publications of Walter Ambrosini

International Journals

- IJ-1. W. Ambrosini, B. Montagnini, F. Oriolo "A one-dimensional coarse-mesh method for conduction in heat structures" *International Journal of Heat and Technology*, Vol. 6 - No. 1-2 1988
- IJ-2. W. Ambrosini, P. Andreussi, B.J Azzopardi. "A physically based correlation for drop size in annular flow", *Int. J. Multiphase Flow*, Vol. 17, No. 4, pp. 497-507, 1991
- IJ-3. F. Oriolo, W. Ambrosini, G. Fruttuoso, F. Parozzi, R. Fontana "Thermal-Hydraulic Modelling in Support to Severe Accident Radionuclide Transport", International Conference on 'New Trends in Nuclear System Thermohydraulics', 30 Maggio - 2 Giugno 1994, Pisa e anche *Nuclear Technology*, Vol. 112, No. 2, Nov. 1995, pp. 239-249
- IJ-4. W. Ambrosini, A. Manfredini, F. Mariotti, F. Oriolo, P. Vigni, "Heat Transfer from a Plate Cooled by a Water Film with Counter-Current Air Flow", International Conference on 'New Trends in Nuclear System Thermohydraulics', 30 Maggio - 2 Giugno 1994, Pisa, e anche *Nuclear Technology*, Vol. 112, No. 2, Nov. 1995, pp. 2
- IJ-5. W. Ambrosini, J.C. Ferreri, "The Effect of Truncation Error on Numerical Prediction of Stability Boundaries in a Natural Circulation Single-Phase Loop", *Nuclear Engineering and Design*, 183 (1998), pp. 53-76
- IJ-6. W. Ambrosini, P. Di Marco and J.C. Ferreri, "Linear and Non-Linear Analysis of Density-Wave Instability Phenomena", *International Journal of Heat and Technology*, Vol. 18, No. 1, 2000, pp. 27-36
- IJ-7. W. Ambrosini and J.C. Ferreri, "Stability Analysis of Single-Phase Thermosyphon Loops by Finite Difference Numerical Methods", Post-SMiRT 14, International Seminar 18 on 'Passive Safety Features in Nuclear Installations', August 25-27th, 1997, Pisa Italy, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 018(97), *Nuclear Engineering and Design*, 201 (2000), pp. 11-23.
- IJ-8. Juan Carlos Ferreri and Walter Ambrosini, "On the analysis of thermal-fluid-dynamic instabilities via numerical discretization of conservation equations", *Nuclear Engineering and Design*, 215 (2002), pp. 153-170.
- IJ-9. W. Ambrosini, N. Forgione, D. Mazzini, F. Oriolo, "Computational study on evaporative film cooling in a vertical channel", *Heat Transfer Engineering*, 2002 - Volume 23 - Issue 5, pp. 25-35.
- IJ-10. W. Ambrosini, N. Forgione, F. Oriolo, "Statistical Characteristics of a Water Film Falling down a Flat Plate at Different Inclinations and Temperatures", *International Journal of Multiphase Flow*, Volume 28, Issue 9, September 2002, pp. 1521-1540.

- IJ-11. J.C. Ferreri, W. Ambrosini, **“Calculation of Sensitivity to Parameters in Single-phase Natural Circulation Flows using ADIFOR”**, *International Journal of Computational Fluid Dynamics*, Volume 16, No. 4/2002, pp. 277 - 281.
- IJ-12. W. Ambrosini, N. Forgione, F. Oriolo, **“Experimental Investigation and Modelling of Film Evaporation in the Presence of Countercurrent Air Flow”**, *International Journal of Heat and Technology*, Vol. 20, No. 2, 2002, pp. 15-22.
- IJ-13. W. Ambrosini and J.C. Ferreri, **“Prediction of Stability of One-dimensional Natural Circulation with a Low Diffusion Numerical Scheme”**, *Annals of Nuclear Energy*, Vol. 30/15 (2003), pp. 1505 – 1537.
- IJ-14. W. Ambrosini **“Eigenvalues and Eigenvectors in Computational Modelling of One-Dimensional Flow Dynamics”**, *International Journal of Heat and Technology*, Vol. 21, No. 1, 2003, pp. 3-12.
- IJ-15. W. Ambrosini, J.C. Ferreri and N. Forgione **“Sensitivity Analyses on Natural Circulation in a 8:1 Tall Enclosure using Finite-Volume Methods”**, *International Journal of Heat and Technology*, Vol. 21, No. 1, 2003, pp. 51-58.
- IJ-16. M. Maiani, W.J.M. de Kruijf, W. Ambrosini, **“An analytical model for the determination of stability boundaries in a natural circulation single-phase thermosyphon loop”**, *International Journal of Heat and Fluid Flow*, 24, (2003), pp. 853-863.
- IJ-17. W. Ambrosini, N. Forgione, J.C. Ferreri, M. Bucci **“The effect of wall friction in single-phase natural circulation stability at the transition between laminar and turbulent flow”**, *Annals of Nuclear Energy*, Vol. 31 (2004) pp. 1833–1865.
- IJ-18. W. Ambrosini, M. Azzati, G. Benamati, G. Bertacci, L. Cinotti, N. Forgione, F. Oriolo, G. Scaddozzo and M. Tarantino, **“Testing and qualification of CIRCE instrumentation based on bubble tubes”** *Journal of Nuclear Materials*, 335 (2004), Issue 2, pp. 293-298.
- IJ-19. W. Ambrosini, G. Forasassi, N. Forgione, F. Oriolo, M. Tarantino, **“Experimental study on combined natural and gas-injection enhanced circulation”** *Nuclear Engineering and Design*, Vol. 235, Issues 10-12, (2005) pp. 1179–1188.
- IJ-20. W. Ambrosini, N. Forgione, A. Manfredini, F. Oriolo, **“On Various Forms of the Heat and Mass Transfer Analogy: Discussion and Application to Condensation Experiments”**, *Nuclear Engineering and Design*, Vol. 236, pp. 1013-1027, 2006.
- IJ-21. W. Ambrosini **“On the analogies in the dynamic behaviour of heated channels with boiling and supercritical fluids”**, *Nuclear Engineering and Design*, Vol. 237/11 pp 1164-1174, 2007.
- IJ-22. D.S. Pikhwal, W. Ambrosini, N. Forgione, P.K. Vijayan, D. Saha, J.C. Ferreri **“Analysis of the unstable behaviour of a single-phase natural circulation loop with one-dimensional and computational fluid-dynamic models”**, *Annals of Nuclear Energy* 34 (2007) 339–355, 2007.
- IJ-23. W. Ambrosini and M. Sharabi, **“Assessment of Stability Maps for Heated Channels with Supercritical Fluids versus the Predictions of a System Code”**, *Nuclear Engineering and Technology*, Vol. 39, No. 5, October 2007.
- IJ-24. M.B. Sharabi a, W. Ambrosini, S. He, **“Prediction of unstable behaviour in a heated channel with water at supercritical pressure by CFD models”** *Annals of Nuclear Energy*, 35 (2008) 767–782.

- IJ-25. M. Bucci, M. Sharabi, W. Ambrosini, N. Forgione, F. Oriolo, S. He, **“Prediction of transpiration effects on heat and mass transfer by different turbulence models”**, *Nuclear Engineering and Design*, 238 (2008) 958–974.
- IJ-26. A. L. Costa, A. Petruzzi, F. D’Auria and W. Ambrosini **“Analyses of instability events in the Peach Bottom-2 BWR using thermal-hydraulic and 3D neutron kinetic coupled codes technique”**, *Science and Technology of Nuclear Installations*, Volume 2008 (2008), Article ID 423175, 16 pagesdoi:10.1155/2008/423175.
- IJ-27. A. L. Costa, C. Pereira, W. Ambrosini, F. D’Auria **“Simulation of a hypothetical out-of-phase instability case in boiling water reactor by RELAP5/PARCS coupled codes”**, *Annals of Nuclear Energy*, 35 (2008) 947–957.
- IJ-28. M. Sharabi, W. Ambrosini, S. He, J.D. Jackson **“Prediction of turbulent convective heat transfer to a fluid at supercritical pressure in square and triangular channels”**, *Annals of Nuclear Energy*, Volume 35, Issue 6, June 2008, Pages 993-1005.
- IJ-29. A. Ciampichetti, P. Agostini, G. Benamati, G. Bandini, D. Pellini, N. Forgione, F. Oriolo, W. Ambrosini **“LBE–water interaction in sub-critical reactors: First experimental and modelling results”**, *Journal of Nuclear Materials*, Volume 376, Issue 3, 15 June 2008, Pages 418-423.
- IJ-30. Antonella Lombardi Costa, Walter Ambrosini, Alessandro Petruzzi, Francesco D’Auria, Claubia Pereira **“Analyses of pressure perturbation events in boiling water reactor”**, *Annals of Nuclear Energy*, 35 (2008) 1199–1215.
- IJ-31. Walter Ambrosini **“Lesson learned from the adoption of numerical techniques in the analysis of nuclear reactor thermal-hydraulic phenomena”**, *Progress in Nuclear Energy*, Volume 50, Issue 8, November 2008, Pages 866-876.
- IJ-32. Walter Ambrosini, Medhat Sharabi **“Dimensionless parameters in stability analysis of heated channels with fluids at supercritical pressures”**, *Nuclear Engineering and Design*, Volume 238, Issue 8, August 2008, Pages 1917-1929.
- IJ-33. Medhat Sharabi, Walter Ambrosini, **Discussion of heat transfer phenomena in fluids at supercritical pressure with the aid of CFD models**, *Annals of Nuclear Energy*, 36 (2009) 60–71.
- IJ-34. W. Ambrosini, N. Forgione, F. Oriolo, E. Semeraro, and M. Tarantino, **Experimental Study on Natural Circulation and Air-Injection Enhanced Circulation With Different Fluids**, *J. Eng. Gas Turbines Power*, May 2009, Volume 131, Issue 3, 032902, DOI:10.1115/1.3043819.
- IJ-35. M. Sharabi and W. Ambrosini, S. He, Pei-Xue Jiang and Chen-Ru Zhao, **Transient Three-Dimensional Stability Analysis of Supercritical Water Reactor Rod Bundle Subchannels by a Computational Fluid Dynamics Code**, *J. Eng. Gas Turbines Power*, March 2009, Volume 131, Issue 2, 022903, DOI:10.1115/1.3032437.
- IJ-36. W. Ambrosini, M. Bucci, N. Forgione, A. Manfredini, and F. Oriolo, **Experiments and Modelling Techniques for Heat and Mass Transfer in Light Water Reactors**, *Science and Technology of Nuclear Installations Volume 2009 (2009)*, Article ID 738480, 11 pagesdoi:10.1155/2009/738480.
- IJ-37. Walter Ambrosini, **Discussion on the stability of heated channels with different fluids at supercritical pressures**, *Nuclear Engineering and Design*, 239 (2009) 2952–2963.

Invited Lectures

- IL-1. W. Ambrosini, **On some physical and numerical aspects in computational modelling of one-dimensional flow dynamics**, 7th International Seminar on Recent Advances in Fluid Mechanics, Physics of Fluids and Associated Complex Systems (Fluidos 2001), CD-ROM, NA, Buenos Aires, Argentina, October 17-19, 2001.
- IL-2. W. Ambrosini, **Thermal-hydraulics and CFD Code Analyses in Heavy Liquid Metal Flows**, IP-EUROTRANS Internal Training Course, Pisa, November 26th - 29th, 2007.
- IL-3. W. Ambrosini, **Thermal-Hydraulic Stability Limits**, International Students Workshop on High Performance Light Water Reactors, March 31 to April 3, 2008, Organized by the HPLWR Working Group, Hosted by Karlsruhe Institute of Technology.

National Journals

- NJ-1. W. Ambrosini, R. Bovalini, F. D'Auria, **"Evaluation of the accuracy of code calculations"**, *Energia Nucleare*, Anno 7, N. 2, Maggio-Settembre 1990
- NJ-2. W. Ambrosini, F. D'Auria, G.M. Galassi, M. Mazzini, **"Design of Two-Phase Flow Instability Tests in a Downscaled BWR Simulator"**, *Energia Nucleare*, Anno 10, N. 3, Settembre-Dicembre 1993
- NJ-3. W. Ambrosini, F. Oriolo, G. Fruttuoso, A. Manfredini, F. Parozzi, M. Valisi, **"Heat and Mass Transfer Phenomena in Innovative Light Water Reactors"**, *Energia Nucleare*, Anno 13, N. 1, Gennaio-Aprile 1996

International Congresses and Meetings with Proceedings

- IC-1. W. Ambrosini, G. Fruttuoso, M. Mazzini, F. Oriolo, **"FASTRAP: a very fast-running code for the analysis of Special Transients and SB-LOCAs in PWRs"**, Anticipated and Abnormal Transients in Nuclear Power Plants Topical Meeting, Atlanta (Georgia, USA), 12-15 Aprile 1987
- IC-2. W. Ambrosini, F. D'Auria, W. Grassi, P. Vigni, **"Accuracy in the prediction of two-phase flow regimes"**, 3rd EURO THERM Seminar on Modeling of Nuclear and Advanced Heat Transfer Components - Bologna, 14-15 Giugno 1988
- IC-3. W. Ambrosini, D. Bestion, F. D'Auria, F. De Pasquale, J.C. Micaelli, M. Tempini, **"Application of the CATHARE advanced code to numerical benchmark exercises"**, 7th EURO THERM Seminar on Thermal Non-Equilibrium in Two-Phase Flow - Roma, 23-24 Marzo 1989, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 065(89)
- IC-4. W. Ambrosini, F. D'Auria, G.M. Galassi, **"Experience in the assessment of the CATHARE advanced code"**, Annual Winter Meeting of the American Society of Mechanical Engineers (ASME), Session on Thermal Hydraulics of Advanced Nuclear Reactors - Dallas (TX), 25-30 Novembre 1990

- IC-5. W. Ambrosini, P. Barbucci, G. Fruttuoso, A. Manfredini, G. Mariotti, F. Oriolo, "**An integrated model for evaluating the thermal-hydraulic behaviour of primary system and containment in innovative LWRs**", International Conference on Design and Safety of Advanced Nuclear Power Plants, 25-29 Ottobre 1992, Tokyo, Giappone
- IC-6. J.C. Ferreri, W. Ambrosini, F. D'Auria, "**On the Convergence of RELAP5 Calculations in a Single-Phase, Natural Circulation Problem**", X Encontro de Física de Reatores e Termo-hidráulica (ENFIR), Aguas de Lindóia, Brasile, 7-11 Agosto 1995
- IC-7. W. Ambrosini, A. Manfredini, F. Oriolo, G. Fruttuoso, S. Paci, P. Barbucci, G. Mariotti, V. Cavicchia, "**Primary System and Containment Phenomena during SBWR Accident Sequences**", ASME Technical Symposium on 'Validation of System Transient Analysis Codes', Hilton Head Island, South Carolina, USA, 14-15 Agosto 1995
- IC-8. W. Ambrosini, P. Barbucci, G. Fruttuoso, G. Mariotti, F. Oriolo, S. Paci, "**Primary System and Containment Interactions during SBWR Accident Sequences**", International Topical Meeting on Advanced Reactor Safety, ARS '94, Pittsburgh, PA, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 11(94)
- IC-9. W. Ambrosini, N. Forgione, F. Oriolo, P. Vigni, "**Characterization of a Falling Film for Heat and Mass Transfer Experiments**", 2nd European Thermal-Sciences and 14th UIT National Heat Transfer Conference 1996, Roma, 29-31 Maggio, 1996
- IC-10. W. Ambrosini, N. Forgione, F. Oriolo, P. Vigni, "**Experimental Research on Containment Cooling by Evaporation of a Falling Film**", International Conference on Nuclear Containment, 23-25 Settembre 1996, Robinson College, University of Cambridge, UK, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 024(96)
- IC-11. W. Ambrosini and J.C. Ferreri, "**Numerical Analysis of Single-Phase Natural Circulation in a Simple Closed Loop**", XI ENFIR / IV ENAN, Joint Nuclear Conferences, August 18-22, 1997, Palace Hotel, Poços del Caldas, MG, Brazil, Also published by the Autoridad Regulatoria Nuclear de Argentina as ARN PI-5/98
- IC-12. W. Ambrosini, N. Forgione, F. Oriolo, P. Vigni, S. Valisi, "**Prediction of Condensation in a Prototypical Passive Containment Condenser**", Post-SMiRT 14, International Seminar 18 on 'Passive Safety Features in Nuclear Installations', August 25-27th, 1997, Pisa Italy, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 017(97)
- IC-13. W. Ambrosini, G. Fruttuoso, F. Oriolo, S. Paci, "**The Coupled Phenomenology of Accident Evolution for Primary System and Containment in Innovative LWRs**", Post-SMiRT 14, International Seminar 18 on 'Passive Safety Features in Nuclear Installations', August 25-27th, 1997, Pisa Italy, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 016(97)
- IC-14. W. Ambrosini, N. Forgione, F. Oriolo, P. Vigni, I. Anhorn, "**Surface Characteristics of a Water Film Falling down a Flat Plate in the Laminar-Wavy Regime**", Third International Conference on Multiphase Flow 98 (ICMF 98), Lyon, France, June 8-12, 1998, Atti del Dipartimento di Costruzioni Meccaniche e Nucleari, DCMN 024(98)
- IC-15. W. Ambrosini, N. Forgione, F. Oriolo, P. Vigni, S. Baessler, "**Experimental Investigation on Wave Velocity in a Falling Film**", 2nd International Symposium on Two-Phase Flow Modelling and Experimentation, Pisa, Italy, May 23-26, 1999, Atti del Dipartimento di Ingegneria Meccanica, Nucleare e della Produzione, DIMNP 002(99)

- IC-16 L. Brusa, A. Bianchi, L. Mazzocchi, P. Vacchiani, L. Cinotti, F. Oriolo, N. Forgiione, W. Ambrosini, F. de Cachard, G.-R. Monauni, **Modelling Condensation on Finned Tube Heat Exchangers in the Presence of Noncondensable Gases**, 2nd International Symposium on Two-Phase Flow Modelling and Experimentation, Pisa, Italy, May 23-26, 1999, Atti del Dipartimento di Ingegneria Meccanica, Nucleare e della Produzione, DIMNP 001(99)
- IC-17 W. Ambrosini, P. Di Marco, A. Susanek, **Prediction of Boiling Channel Stability by a Finite-Difference Numerical Method**, 2nd International Symposium on Two-Phase Flow Modelling and Experimentation, Pisa, Italy, May 23-26, 1999, Atti del Dipartimento di Ingegneria Meccanica, Nucleare e della Produzione, DIMNP 003(99)
- IC-18 J.C. Ferreri and W. Ambrosini, **Sensitivity to parameters in single-phase natural circulation via automatic differentiation of Fortran codes**, Proceedings of the EURO-THERM SEMINAR N°63, 6-8 September, 1999, Genoa, Italy
- IC-19 Ferreri, J.C. and Ambrosini, W., **Calculation of Sensitivity to Parameters in Single-Phase Natural Circulation Using ADIFOR**, Mecánica Computacional, Vol. XIX, pp.25-30, F. Quintana and S. Felicelli (Eds.), Procs. of XI ENIEF, San Carlos de Bariloche, Argentina, Nov. 24-29, 2000.
- IC-20 W. Ambrosini, N. Forgiione, A. Manfredini, F. Oriolo, **Prediction of Heat and Mass Transfer in Innovative Nuclear Reactors**, 3rd International Conference on Nuclear Otpion in Countries with Small and Medium Electricity Grids, June 19-22, 2000, Dubrovnik, Croatia.
- IC-21 W. Ambrosini, N. Forgiione, D. Mazzini, F. Oriolo, S. He, **CFD Analysis of Evaporation Cooling Experimental Tests**, 9th International Conference on Nuclear Engineering (ICONE-9) - April 8-12, 2001, vol. **CD ROM**, NA, Nice Acropolis – France.
- IC-22 W. Ambrosini, J.C. Ferreri, N. Forgiione, **Finite-Volume analysis of natural convection in a 8:1 tall enclosure**, First MIT Conference on Computational Fluid and Solid Mechanics, vol. **2**, 1446, Cambridge, MA, June 12-15, 2001.
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