

PERSONAL INFORMATION

Name	MICCIO FRANCESCO
E-mail	francesco.miccio@cnr.it
Nationality	Italian
Date of birth	1 st August 1962

WORK EXPERIENCE

- Dates (from – to) from 16/11/1989
 - Name and address of employer Consiglio Nazionale delle Ricerche
 - Type of business or sector Public Research Organization
 - Occupation or position held Senior Researcher (since 2001)
 - Main activities and responsibilities Scientist, Responsible of research projects
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- Dates (from – to) from 1/1/1988 to 15/11/1989
 - Name and address of employer IC Soft SpA - Napoli I
 - Type of business or sector Private Software Company
 - Occupation or position held Software programmer
 - Main activities and responsibilities Programming Cobol, C, Assembler; Trainer in ICT courses

EDUCATION AND TRAINING

- Dates (from – to) 1981-1987
 - Name and type of organisation providing education and training Università degli Studi di Napoli - Facoltà di Ingegneria
P.le V. Tecchio 80 - Napoli I
 - Principal subjects/occupational skills covered Process Engineering (chemistry, physics, mathematics, thermodynamics, fluid-dynamics, process engineering, combustion)
 - Title of qualification awarded Degree in Chemical Engineering (5 years)
 - Level in national classification (if appropriate) Grade: 110/110 cum laude
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- Dates (from – to) 2002 (2 days)
 - Name and type of organisation providing education and training University of Stuttgart (D)
 - Argument of training Project Management
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- Dates (from – to) 2005 (2 days)
 - Name and type of organisation providing education and training JRC European Commission
 - Argument of training Public Speaking
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- Dates (from – to) 2005 (2 days)
 - Name and type of organisation providing education and training JRC European Commission
 - Argument of training Scientific writing

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE

Italian

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

ENGLISH

Upper Intermediate (PET)

Upper Intermediate (PET)

Upper Intermediate (PET)

- Reading skills
- Writing skills
- Verbal skills

GERMAN

Basic (ZD)

Basic (ZD)

Basic (ZD)

- Reading skills
- Writing skills
- Verbal skills

FRENCH

Basic

Basic

Basic

ORGANISATIONAL SKILLS
AND COMPETENCES

The ability to work within a team as well as autonomously

Capability in the organization and coordination of research team and projects

Competence in project management acquired upon specific training and by coordination of national and international projects

Openness toward other cultures and traditions

Ability to communicate effectively

Experience of working in a multicultural environment, with a multidisciplinary approach

A sense of respect and co-operation, as well as good social skill

TECHNICAL SKILLS
AND COMPETENCES

Competence in thermal processes (combustion, gasification and pyrolysis) for energy and chemicals production

Competence in processes and materials for reducing the emissions on NO_x, SO₂ and CO₂ from industrial processes into the environment

Competence in design and operation of experimental combustion facilities for coal and alternative solid fuels (biomass, wastes, by-products)

Competence in mathematical modelling applied to process engineering

Expertise in computer assisted mechanical design (CAD)

Excellent computer skill

ADDITIONAL INFORMATION

SCIENTIFIC ACTIVITIES

- 1989-2012 **RESEARCHER** AT INSTITUTE FOR RESEARCH ON COMBUSTION (IRC) OF CNR IN NAPOLI
- 1992-1994: **SCIENTIFIC RESPONSIBLE** FOR IRC/CNR OF THE CONTRACT JOUF0057 (EDB) JOULE PROGRAMME – "ENERGY FROM FOSSIL SOURCES: SOLID FUELS" DG- RESEARCH - EUROPEAN COMMISSION
- 1993-1994: **SCIENTIFIC RESPONSIBLE** FOR IRC/CNR OF THE STRATEGIC PROJECT "AREE METROPOLITANE ED AMBIENTE" OF CNR
- 1997-1998: **VISITING SCIENTIST** AT INSTITUTE FOR PROCESS ENGINEERING AND POWER PLANT TECHNOLOGY (IVD) - UNIVERSITY OF STUTTGART (D) UNDER A 18 MONTHS RESEARCH FELLOWSHIP OF ALEXANDER VON HUMBOLDT FOUNDATION (BONN D) FOR A RESEARCH ACTIVITY ON BIOMASS GASIFICATION IN FLUIDIZED BED
- 1999: **VISITING SCIENTIST** AT INSTITUTE OF CHEMICAL ENGINEERING, FUEL TECHNOLOGY AND ENVIRONMENTAL TECHNOLOGY - VIENNA UNIVERSITY OF TECHNOLOGY (AUSTRIA) IN THE FRAME OF A SHORT TERM MOBILITY PROGRAM OF CNR
- 2004: **SCIENTIFIC RESPONSIBLE** FOR IRC/CNR OF THE CONTRACT QUOVADIS - INTELLIGENT ENERGY EUROPE ALTENER PROGRAMME – DG-TREN OF THE EUROPEAN COMMISSION
- 2005-2006: **DETACHED NATIONAL EXPERT (END)** AT THE EUROPEAN COMMISSION JRC/INSTITUTE FOR ENERGY (PETTEN NL) FOR THE DEVELOPMENT OF A RESEARCH CONCERNING BIOMASS/WASTE GASIFICATION
- 2012 - : **SENIOR RESEARCHER** AT INSTITUTE FOR SCIENCE AND TECHNOLOGY OF CERAMIC MATERIALS (ISTEC) OF CNR IN FAENZA

SCIENTIFIC RESPONSIBLE OF R&D ACTIVITIES COMMITTED TO CNR BY THIRD PARTIES/INDUSTRIES (ENEL, ENEA, SAGETER, ITALGEST)

SCIENTIST IN CHARGE FOR CNR IN THE FRAME OF INTERNATIONAL AND NATIONAL RESEARCH COLLABORATIVE PROJECTS:

- PC-WAM JOUF0057 (EC JOULE PROGRAMME 1990-1994)
- QUOVADIS (EC EIE/04/031/S07.38597 2005-2007)
- SCALE FACTOR IN SPATIAL LAUNCHERS (ASI RESEARCH CONTRACT I/R/187/01 2002-2003)
- TERMOREF (POR-FESR 2014-2020 EMILIA ROMAGNA)

ACADEMIC AND DIDACTIC ACTIVITY

- 2002: **CONTRACT PROFESSOR** AT UNIVERSITÀ DI SALERNO (I) FOR SUPPLEMENTAL LESSONS FOR THE COURSE "DYNAMICS AND CONTROL OF CHEMICAL PROCESSES" AND TUTORING
- 2003: **CONTRACT PROFESSOR** AT UNIVERSITÀ DI SALERNO (I) FOR SUPPLEMENTAL LESSONS FOR THE COURSE " DYNAMICS AND CONTROL OF CHEMICAL PROCESSES" AND TUTORING
- 2008: **PROFESSOR** FOR A HIGH FORMATION COURSE ON SOLID RECOVERED FUELS – NEW PERSPECTIVES DERIVING FROM THE EUROPEAN NORMATIVE ON WASTES
- 2011: **CONTRACT PROFESSOR** AT "ALMA MATER STUDIORUM" UNIVERSITÀ DI BOLOGNA (I) FOR SUPPLEMENTAL LESSONS ON "THERMOCHEMICAL PROCESSES" TO STUDENTS OF THE MASTER IN CHEMICAL ENGINEERING
- 2012: **CONTRACT PROFESSOR** AT "ALMA MATER STUDIORUM" UNIVERSITÀ DI BOLOGNA (I) FOR SUPPLEMENTAL LESSONS ON "THERMOCHEMICAL PROCESSES" TO STUDENTS OF THE MASTER IN CHEMICAL ENGINEERING
- 2014: **PROFESSOR** FOR A HIGH FORMATION COURSE ON ADVANCED MATERIALS FOR AERO-SPATIAL APPLICATION (PANDION NATIONAL PROJECT)
- 2017: **QUALIFICATION AS ASSOCIATED PROFESSOR** IN CHEMICAL ENGINEERING OBTAINED BY THE ITALIAN MINISTRY OF EDUCATION, UNIVERSITIES AND RESEARCH

DISSEMINATION AND TUTORING

INVITED FOR LECTURES AND LESSONS ON TOPICS ON ENERGY & FUELS, COMBUSTION, GASIFICATION, FLUIDIZATION AND PROCESS DYNAMICS/CONTROL.

TUTOR FOR VISITING SCIENTISTS, PERSONNEL IN TRAINING, GRANT-HOLDERS, DEGREE AND PHD STUDENTS

PARTICIPATION TO TECHNICAL COMMITTEES AND EVALUATION EXERCISES

2001-2002: **ITALIAN DELEGATE** IN CEN TC-335 WG3 FOR THE EUROPEAN NORMATIVE ON SOLID BIOFUELS

2003-2008: **ITALIAN DELEGATE** IN CEN TC-343 WG4 FOR THE EUROPEAN NORMATIVE ON SOLID RECOVERED FUELS

2008: **EXPERT EVALUATOR** FOR A RESEARCH PROJECT IN THE FRAME OF A CALL OF NATIONAL RESEARCH FOUNDATION - SOUTH AFRICA (NRF-SA)

2012-2014: **MEMBER OF THE ITALIAN COMMITTEE (CTI GL904)** FOR THE COMPILATION OF A TECHNICAL RECOMMENDATION ON GASIFIERS FOR LIGNO-CELLULOSIC FUELS

2013: **EXPERT EVALUATOR** FOR RESEARCH PROJECTS OF THE ITALIAN MINISTRY FOR AGRICULTURE, FOOD AND FORESTRY

2013: **EXPERT EVALUATOR** OF TWO PROPOSALS SUBMITTED TO EC- RFCS CALL 2013

2013: **MONITORING EXPERT** OF EC-FP7-ENERGY OPTIMASH PROJECT FOR EUROPEAN COMMISSION

2014-2015: **EXPERT EVALUATOR** FOR INNOVATION PROJECTS OF THE ITALIAN MINISTRY FOR ECONOMIC DEVELOPMENT MISE

2015: **ENROLLED EXPERT** IN "LARGE-SCALE COMBUSTION OF CARBON FUELS" FOR NINE SIGMA INC. (USA)

2016: **ITALIAN DELEGATE** IN WG 04 "PHYSICAL AND MECHANICAL TESTS" OF ISO/TC 300 ON "SOLID RECOVERED FUELS"

2016: **EXPERT EVALUATOR AND RAPPORTEUR** FOR PROPOSALS SUBMITTED TO EC- RFCS CALL 2016

REVIEWER FOR INTERNATIONAL PEER REVIEWED JOURNALS:

ADV. POWDER TECHNOLOGY, APPLIED ENERGY, APPLIED SCIENCES, BIOMASS & BIOENERGY, CARBON LETTERS, CHEM. ENG. JOURNAL, CHEM. ENG. COMMUNICATIONS, CHEM. ENG. RES. DESIGN, CHEM. ENG. SCIENCE, CHEM. ENG. TRANSACTIONS, CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY, COMB. SCI. TECH., COMBUSTION AND FLAME, COMPUTERS & CHEMICAL ENG., ENERGIES, ENERGY & FUELS, ENERGY CONV. MANAGEMENT, ENG. SCI. AND TECHNOLOGY, FUEL PROCESSING TECH., FUEL, INT. JOURNAL HYDROGEN ENERGY, J. HAZARDOUS MATERIALS, J. TAIWAN INST. CHEM. ENG., SUSTAINABILITY

SERVICES IN INTERNATIONAL CONFERENCES

REVIEWER FOR: INT. SYMPOSIUM ON COMBUSTION, FBC CONFERENCES, EF FLUIDIZATION CONFERENCES, CFB CONFERENCES

TOPICAL COORDINATOR OF SUSTAINABLE FUELS SESSION AT 21ST FBC CONFERENCE 2012

CHAIRMAN OF SESSION AT 21ST FBC CONFERENCE 2012, 12TH ICHEAP 2015

MEMBER OF THE SCIENTIFIC COMMITTEE OF 11TH EUROPEAN CONFERENCE ON INDUSTRIAL FURNACES AND BOILERS (INFUB-11 2017)

MEMBER OF THE SCIENTIFIC COMMITTEE OF INT. CONFERENCE ON BIOMASS (ICONBM- 2018)

PROJECT COORDINATION

2007-2010: **COORDINATOR** OF THE RESEARCH PROJECT FLEXGAS (RFCR-CT-2007-0005) FUNDED BY RFCS OF THE EUROPEAN COMMISSION DEALING WITH CO-GASIFICATION OF COAL, BIOMASS AND WASTES IN FLUIDISED BED

2010-2012: **COORDINATOR** OF THE RESEARCH PROJECT FLAVIA FUNDED BY THE ITALIAN MINISTRY FOR AGRICULTURE, FOOD AND FORESTRY DEALING WITH THERMO-VALORISATION OF RESIDUAL BIOMASS WASTES FROM OLIVE-OIL PRODUCTION

2010-2013: **COORDINATOR** OF THE RESEARCH PROJECT FECUNDUS (N. RFCR-CT-2010-00009 2010-2013) FUNDED BY RFCS OF THE EUROPEAN COMMISSION DEALING WITH CO-GASIFICATION OF COAL IN FLUIDISED BED AND ENTRAINED FLOW WITH CO₂ CAPTURE

BIBLIOMETRIC DATA

AUTHOR/CO-AUTHOR OF **44** ARTICLES PUBLISHED IN ISI INDEXED JOURNALS AND **110** PAPERS COLLECTED IN BOOKS, JOURNALS OR CONFERENCE PROCEEDINGS (INTERNATIONAL)

H-INDEX: **15** (SCOPUS SOURCE)

NUMBER OF CITATIONS: **743** (SCOPUS SOURCE)

PATENTS

Italian patent N. 01295837

Injector for coal-water suspensions with variable geometry

Italian Patent MI2012A002111

CO₂ Absorber including porous hydroxyapatite

PCT International patent N. WO/2012/172579

Combustion fluid-bed plant which can be fed with conventional and alternative liquid fuels

PCT International patent N. WO/2017/013581

Alternating potential gas separation process with capacitive membranes, and relevant plant

RECENT PUBLICATIONS

P. Brachi, E. Riianova, M. Miccio, F. Miccio, G. Ruoppolo, R. Chirone

A study on the valorization of sugar beet pulp via torrefaction with a focus on the effect of the preliminary extraction of pectins, *Energy Fuels*, Vol. 31, p. 9595–9604 (2017)

F. Miccio, A. Natali Murri, E. Landi

Synthesis and characterization of geopolymer oxygen carriers for chemical looping combustion *Applied Energy*, Vol. 194, p. 136-147 (2017)

P. Brachi, F. Miccio, M. Miccio, G. Ruoppolo

Pseudo-component thermal decomposition kinetics of tomato peels via isoconversional methods *Fuel Processing Technology*, Vol. 154, p. 243-250, DOI 10.1016/j.fuproc.2016.09.001 (2016)

F. Miccio

Thermoelectric properties of carbonaceous solids, *Carbon Letters*, Vol. 19, p. 107-111 (2016)

P. Brachi, F. Miccio, M. Miccio, G. Ruoppolo

Torrefaction of tomato peel residues in a fluidized bed of inert particles and a fixed bed reactor *Energy Fuels*, Vol. 30, p. 4858–4868, DOI: 10.1021/acs.energyfuels.6b00328 (2016)

F. Miccio, A. Natali Murri, E. Landi

High temperature capture of CO₂ by strontium oxide sorbents, *Ind. Eng. Chem. Res.*, Vol. 55, p. 6696–6707 (2016)

M. Minelli, V. Medri, E. Papa, F. Miccio, E. Landi, F. Doghieri

Geopolymers as solid adsorbent for CO₂ capture, *Chemical Engineering Science*, Vol. 148, p. 267-274 (2016)

F. Miccio, A. Picarelli, G. Ruoppolo

Increasing tar and hydrocarbons conversion by catalysis in bubbling fluidized bed gasifiers *Fuel Processing Technology*, Vol. 141, p. 31-37, DOI:10.1016/j.fuproc.2015.06.007 (2016)

P. Brachi, F. Miccio, M. Miccio, G. Ruoppolo

Isoconversional kinetic analysis of olive pomace decomposition under torrefaction operating conditions *Fuel Processing Technology*, Vol. 130, p. 147-154 DOI: 10.1016/j.fuproc.2014.09.043 (2015)

E. Landi, S. Riccobelli, N. Sangiorgi, A. Sanson, F. Doghieri, F. Miccio

Porous apatites as novel high temperature sorbents for carbon dioxide *Chem. Eng. J.*, Vol. 254, p. 586-596 (2014)

P. Brachi, R. Chirone, F. Miccio, M. Miccio, A. Picarelli, G. Ruoppolo

Fluidized bed co-gasification of biomass with polymeric wastes for a flexible end-use of the syngas: focus on bio-methanol, *Fuel*, Vol. 128, p. 88-98 (2014)

E. Papa, V. Medri, E. Landi, B. Ballarin, F. Miccio

Production and characterization of geopolymers based on mixed compositions of metakaolin and coal ashes *Materials and Design*, Vol. 56, p. 409-415 (2014)