

## **Giuseppe Bucci – SINAPSI INNOTECH Srl President Curriculum Vitae**

**Summary** – He was graduated in 1984 in Mechanical Engineering at Politecnico di Milano specializing in Energy resources and application. His first job was in the most important Italian energy group, ENI in the company SNAM where he was involved in research and studies about energy saving in industrial applications and Nox reduction in gas combustion. During this period he consolidated his background in fluid dynamics, heat transfer modeling and energy management. After this working experience he changed company in 1988 and was employed in an engineering and consulting company ( DAL ) mainly oriented to support big energy group ( Enel, ENI ) in energy exploitation projects abroad. So he was involved in geothermal energy activities and he had three main forging experience : geothermal field data acquisition in Kizildere Geothermal Electric Plant ( Turkey ), data acquisition and modeling of Nysiros geothermal field (Greece ), mathematical modeling for reservoir engineering of Momotombo field (Nicaragua ). In 1991 he started his own company for consulting in energy and industrial applications. The consulting activity ranges from CFD analysis of nuclear components to CFD/FEM analysis of wind turbine, blades in gas turbine for combined cycle plants ( ENEL ), from technical economical feasibility of cogeneration plants for gas net ( SPI-ENI ) to simulation of gas release in chemical plants ( Exponent-Failure Analysis Associated – Menlo Park –CA). During his professional activity he likes to keep a cooperation with universities in research projects and lectures ( Politecnico di Milano, Università di Ferrara ).

### **Personal details**

Name: **Giuseppe Bucci**  
Date of birth: **2<sup>nd</sup> of May 1959**  
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Languages **Italian, English**

### **CV Personal Profile**

Now working as a consultant for Sinapsi Innotech. The objective for the next years is to make available his experience and competence in fluid dynamics and heat transfer for developing new products or optimize existing ones in every manufacturing sector ( energy, mechanics, automotive, electronics, hvac, clean rooms ) as a consultant. His competence includes creating mathematical models and translating them in software for technical applications. Available for medium duration projects ( 1 to 12 months) in European and extra European countries.

### **Specialized Professional Competence**

Fluid dynamics, heat transfer, combustion, environmental modeling.  
Fluid dynamics in industrial systems, computational fluid dynamics, numerical simulation of  
incompressible-compressible flows,  
fluid-structure interaction,  
two-phase flow,  
natural convection,  
pollutant dispersion,  
indoor air quality simulation,  
heat transfer in process furnace,  
dynamic systems simulation,  
flow in porous media,  
solar energy,  
energy process analysis and simulation,  
geothermal reservoir and wells modeling.  
Deep competence in modeling and numerical testing with simulation codes

(FLOWWORKS, STAR CD, AEA FLOW3D-CFX, ASTEC, SPECTRUM, COSMOS-FLOWPLUS, EFDLab, EFDPro).  
Software project engineer (C, FORTRAN) in developing computer packages for simulation.

### **Background and Professional Honors**

**1984-Doctor Degree in Mechanical Engineering**, Politecnico of Milan, Italy, specialized in Energy resources management

#### **1985-1986-Specialization Courses:**

- Long range transport of air pollution - CCR ISPRA (Italy)
- Computational fluid dynamics - Von Karman Institute (Belgium)
- Computational fluid dynamics - Politecnico of Milan (Italy) – prof. Quarteroni

**1985-2000-Lecturer** . Politecnico of Milan, Energy Dept , Milan, Italy – SOLAR ENERGY course

**1985-1988-Combustion systems and energy process engineer** . SNAM (ENI Group), Milan, Italy

**1988-Kizildere geothermal project, wells data logging and geothermal reservoir modeling-Turkey** on site . DAL, Milan, Italy

**1989-1990-Nisyros geothermal project, wells data logging and geothermal reservoir modeling –** Greece on site . E.E.C. project DAL, Milan, Italy

**1991-1993-Consultant for innovative energy process simulation** . CISE, Milan, Italy

**1993-1994-Consultant for energy recovery projects, government financial support analysis** . Societa Petrolifera Italiana, Italy

**1994-1995-Consultant for energy component analysis** . Exponent – Failure Analysis Associates-Menlo Park, CA - USA

**1995-2012-Head, Fluid dynamics and process simulation** . SINAPSI, Manerba d/G(BS), Italy

**2001-2007-Technical manager in Italy for fluid dynamics simulation software EfdLab-** . NIKA GmbH – Frankfurt - Germany

### **Selected Publications**

**Floor heating systems and solar energy– Comfort design and energy saving evaluation**  
Research project

G Bucci, P A Andreini, F Palmizi(1986)

**Floor heating systems – A comparison with traditional heating components**

G Bucci, P A Andreini, F Palmizi Energia e calore (1986)

**Floor heating systems – Calculation methods**

G Bucci, P A Andreini , Energia e calore (1986)

***An application of a mathematical model to evaluate energy consumption of tunnel kilns***

G Bucci and P A Andreini, La Termotecnica (1988)

***A mathematical model to study industrial drying process of pasta***

G. Bucci and P.A Andreini, La Termotecnica (1991)

***A mathematical model to simulate chimney stack***

G Bucci and P A. Andreini, La Termotecnica (1988)

***Computational fluid dynamics in valve design***

G Bucci and M. Orzali, Valves & Actuators (1994)

***A mathematical model to study room ventilation and indoor gas dispersion***

G Bucci and P.A. Andreini, La Termotecnica (1994)

***CFD analysis of a wind turbine***

G. Bucci, M. Gaia, E.Manciana

***Fluid structure interaction numerical analysis of an aluminum strip in pretreatment cell***

G Bucci and A Manusardi

***Numerical investigations of different stack design solutions in a cogeneration plant***

G Bucci and M Pinelli

Issued at ASME Turbo 2004, June 2004, Wien

***"Industrial Furnaces"*** ch. no 22 in Mechanical Engineer Handbook (HOEPLI)

**University Lectures**

***Solar energy systems and Combustion fundamentals*** (from 1988 to 2000)

Politecnico di Milano, Energy Department

***Computational techniques for heat transfer and fluid flow*** (from 1990 to 1998)

Politecnico di Milano, Energy Department

**Technical reports**

- Transient simulation of PSP in a nuclear **SBWR plant** .
- CFD analysis of an air supply system for **industrial burners** .
- CFD analysis of a **gas turbine** test combustor .
- CFD analysis of a power plant water discharge system .
- CFD analysis of **pollutant dispersion** from chimney stacks .
- **Indoor gas dispersion** simulation: Methane and CO case studies .
- Noise reduction and fluid flow modeling in pipes for **hydraulic systems** .
- CFD analysis of a patented noise reduction device for **industrial valves** .
- **Dynamic simulation** of a passive suspension system for competition cars .
- Seakeeping mathematical model of a **Surface Effect Ship (SES)** .
- Fluid dynamic simulation of a **control valve** for SES .
- Fluid structure interaction analysis of aluminium strip pretreatment cell
- Fluid structure interaction of **gas turbine blade**
- CFD analysis of a **waste treatment furnace**
- CFD analysis of a centrifugal fan

- A computational method to calculate pressure, temperature and velocity of flue gases in residential boiler chimneys, to be applied in Italian standards UNI 10640, UNI 10641
- A computational method to calculate pressure, temperature and velocity of flue gases in manifolds for multiboilers systems
- CFD analysis of a **heat exchanger** for a condensing boiler
- CFD analysis of a **steel corrugated heat exchanger** for a boiler
- CFD analysis of a **plate heat exchanger**
- CFD analysis of a **shell and tube heat exchanger**
- Analysis and design of a linear valve for **gas control and regulation in burners**
- Analysis of injection forming of PET and cooling
- Analysis of air mixing in gas burners
- A **mathematical model to simulate an ORC** ( Organic Rankine Cycle) plant.
- CFD analysis of **clean rooms** for pharmaceutical plants

#### MAIN REFERENCES IN CONSULTING ACTIVITIES

- ASTRA REFRIGERANTI
- BAXI
- BRAHMA
- CAMOZZI
- CIG-UNI
- CESI-ENEL
- ELECTROLUX
- DE LONGHI
- FABER
- FERROLI
- GIANNONI
- GRUPPO IMAR
- HONEYWELL
- ICI CALDAIE
- INCOS MOLDING
- MANULI RUBBER
- MTS
- PAIOLI
- PARCOL
- PETROL VALVES
- PIRELLI
- RIELLO
- RIVA CALZONI
- SABAF
- SCHIEDEL ITALIA
- SNAM ENI
- SOMIPRESS
- TECHINT
- THERMOKEY
- TRW
- TURBODEN-PRATT&WHITNEY
- TYCO VALVES
- UNIVERSITA' DI FERRARA
- UNIVERSITA' DI VERONA
- POLITECNICO DI MILANO
- EXPONENT (USA)
- ENVIROCOMP (USA)

