

curriculum vitae**GIACOMO CAVUOTI****MASTER DATA**

FULL NAME	Giacomo Antonio Cavuoti
DATE / PLACE OF BIRTH	22 april 1960, Potenza (Italy)
NATIONALITY	Italian
MILITARY SERVICE	acquitted, 1 year in Italian Army
MARITAL STATUS	married with two sons (23 and 20 years old)
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STUDIES

HIGH SCHOOL	Liceo Scientifico A.Serpieri, Rimini
UNIVERSITY	University of Bologna, Faculty of Chemical Engineering (Process specialit.). Graduated with 100/100 and honor. Thesis on "Problems of pervaporation through porous membranes" supervisor Prof. G.C.Sarti

COMPUTER AND PROGRAMMING SKILLS

PROCESS SIMULATOR	Hysys, PRO II, Aspen Plus
SOLVERS	Matlab
OTHER SOFTWARES	Current use of all Microsoft Office software, with high skills about Excel-VBA
PROGRAMMING LANGUAGES	Fortran 90, Visual Basic, Visual Basic for Application (VBA)
SIMULATION AND MODELING	3D-transient calculation codes for the simulation of the fields of velocity, pressure, temperature and chemical composition for complex geometry and many applications. In particular, codes for 3D-transient computational fluid dynamics and finite volume modeling process simulators for equipment in non-equilibrium conditions. Interactive graphical interface for input-output data using Excel VBA.

FOREIGN LANGUAGES

ENGLISH	currently read, written and spoken.
FRENCH	a language that I had spoken fluently some years ago.

I am available to business trips worldwide and to permanently transfer the workplace everywhere in Europe and Oversea.

PROFESSIONAL EXPERIENCE

EUROTECNICA SPA (MILANO) : FEBRUARY 2015 - TODAY

As Simulation and Modeling Section Manager

Mathematical model and simulation software for Carbon Black furnace reactors

Developing and Patent application for an innovative Urea prilling process

Developing and Patent application of a new process for direct recovery of off-gas from melamine plants

CASALE GROUP SA (LUGANO-SWITZERLAND) : DECEMBER 2004 - JANUARY 2015

As Simulation and Modeling Section Manager R&T Department

Full implementation of an in-house Urea plant process simulator (see attachments).

Fluid dynamics simulation of catalyst beds reactors: ammonia, methanol, CO shift, formaldehyde.

Mathematical model for simulation of urea prills in prilling tower.

Simulation model of fluidized bed and Vortex Bed® urea granulators.

New arrangement of overall urea plant HP loop in a new single top-down reactor (see Patents).

New solution for urea stripper with rifled tubes and other innovative design (not yet patented).

Urea plant recycle section: a new water separation process like that in the phthalic anhydride process (not yet patented).

Energy recovery system instead of stripper bottom lamination valve (not yet patented).

SNAMPROGETTI SPA (MILAN-ITALY) : FEBRUARY 2004 - DECEMBER 2004

As Research and Development Engineer at Urea process group

Technological development and patent process Snamprogetti Urea.

Formulation of suitable tools for the simulation of new system configurations and innovative equipment.

HERA SPA (RIMINI-ITALY): FROM MAY 1999 TO FEBRUARY 2004

As Head of Research and Development of AMIA Rimini SpA (a subsidiary company of Hera SpA)

I have dealt with:

- design of the new composting plant in Rimini with particular attention to the 2D simulation with computer models of the primary bioreactor;
- new process for gasification of raw municipal solid waste with high temperature preheated air;
- feasibility study of a photovoltaic power with flat mirrors concentrator (heliostat) implemented by microcontrollers network;
- development of a finite volume unsteady 3D computer model for simulation of bioreactors for bioremediation of soils polluted by heavy fuel oils.

SNAMPROGETTI SPA (MILAN-ITALY) : OCTOBER 1996 - APRIL 1999

As Process and Development Engineer at Urea process group

Research, development and design in the process group of the Urea Plant.

I was involved in the process group of Urea plants with emphasis on the development of a owner simulator with graphical input-output, based on a plug-flow two-phase current model and with thermodynamic and kinetic models for the reaction and phase equilibria.

This software has been used for the simulation of the largest production Urea plant existing at that time: 3500 metric tons per day (MTPD) in Bahia Blanca, Argentina.

I have also written computer codes in Fortran-VisualBasic for process material balance, steam and cooling water facilities.

I have participated in the following projects and test-run:

- project of dual train Urea plant 1760 MTPD of Tarim - China.
- project of 1050 MTPD Urea plant of Taiyuan - China.
- test-run (January-February 1997) of 500 MTPD Urea plant sited in Chishui - Guizhou - China.

BELLELI SPA (MANTOVA-ITALY) : JULY 1992 - SEPTEMBER 1996

as Equipment development engineer

At Engineering Division I have dealt with heat transfer and thermo-fluid dynamic modeling and process:

heat exchange:

- thermal transients of start-ups in catalytic reactors for NOx reduction (DENOX);
- thermal transients of the coke-drum for the revamping of the coking refinery of Gela;
- calculation models for transient start-up of boilers with natural circulation forced-thermal power plants;
- fluid dynamics analysis of a radiant cooler for a pilot plant for coal gasification (IGCC, United States).

thermo fluid-dynamic modeling:

- development of a 3D finite-volume numerical code for the calculation of the fields of velocity, pressure, temperature, composition and application of the code for the simulation of steam condenser for power plants, shell and tube heaters, blowers for drying chambers;
- sizing chimney and calculation of dispersion of pollutants;
- development of computational models for solving the transport networks of compressible fluids;

HIMONT SPA (FERRARA-ITALY) NOW LYONDELLBASELL : OCTOBER 1990 - JULY 1992

As Process technologist in the plant for the production of polymer alloys with gas phase fluidized bed reactors (MPX).

As Process Engineer at the process group of Mantova (IT) for the design of a new prototype plant with polyethylene reactors in gas phase fluidized bed.

As Research and development engineer at Natta Research Center of Ferrara, where I worked on:

- efflux gas-liquid-solid slurry in polypropylene propylene through tubes of the flash;
- columns of elutriation-sedimentation of non-stationary catalyst powders;
- simulation model of distillation column for mixtures of ethoxy-silanes and organic solvents;
- development of a code for calculating the thermodynamic properties of propylene by IUPAC equation of state.
- growing model of blended polypropylene-ethylene granules from gas phase monomers, on supported Ziegler-Natta catalysts.

UNIVERSITY OF BOLOGNA (BOLOGNA-ITALY) : JULY 1989 - SEPTEMBER 1990

As Researcher at the Institute of Chemical Plants, University of Bologna, funded by Snamprogetti on "Processes of recovery and regeneration of alkali salts injected into the gas-plasma channels of magnetohydrodynamic (MHD)" for high efficiency thermal power plants.

PUBLICATIONS AND PATENTS

COMMUNICATIONS TO CONGRESS AND PRINTS

1. Vacuum Membrane Distillation through capillary Polypropylene Membranes
(G.C.Sarti, C.Gostoli, **G.Cavuoti**)
The 1990 International Congress on Membrane and Membrane processes, Chicago (Ill.), August 1990
Proceedings of the 1990 International Congress on Membrane and Membrane Processes, Vol.I, pag. 65 (1990).
2. Seed Impurity Effects on Plasma Conductivity in MHD Plants Based on Gas Fuel.
(L.Bruno, **G.Cavuoti**, M.Nocentini, R.Ricci, G.C.Sarti)
The 11th International Conference on "MHD Electrical Power Generation", Beijing, 1992.
Proceedings of the 11th International Conference on "MHD Electrical Power Generation", Int. Acad. Publishers, Vol.III, pag. 834 (1992).
3. Mathematical Model for Urea Process
(**G. Cavuoti**, Snamprogetti)
4th Snamprogetti Worldwide Urea User Symposium – Giardini Naxos, Italy, 12-16 October 2004
4. Mathematical modelling for advanced technologies
(**G.Cavuoti**, G.Bedetti, E. Filippi - Casale Group)
8th SABIC TECHNICAL MEETING (STM-8) - Al Jubail, Saudi Arabia – 6, 8 April 2008
5. CB Reactors Simulation Model for ET Black™ Technology
(**G.Cavuoti**, Eurotecnica)
Carbon Black World Conference - Dusseldorf, Germany – 26 September 2018
6. CB Reactors Simulation Model for ET Black™ Technology
(**G.Cavuoti**, Eurotecnica)
The European Carbon Black Summit – 26-27 June 2019, London

PATENTS

Application No. / Patent No.: 11192011.2 - 2103

Applicant: Urea Casale SA Date of filing: 05.12.2011

Title: A process for Synthesis of urea and a related arrangement for a reaction section of a urea plant

Inventor: G. Sioli, **G.Cavuoti**

Patent Application No. WO2018/096495A1.

Applicant: Eurotecnica Melamine, Luxemburg Date of filing: 24.11.2017

Title: "Plant and process for the production of solid urea in granules "

Inventor: **G.Cavuoti**

Patent Application No. WO2020/003234A1.

Applicant: Eurotecnica Melamine, Luxemburg Date of filing: 28.06.2019

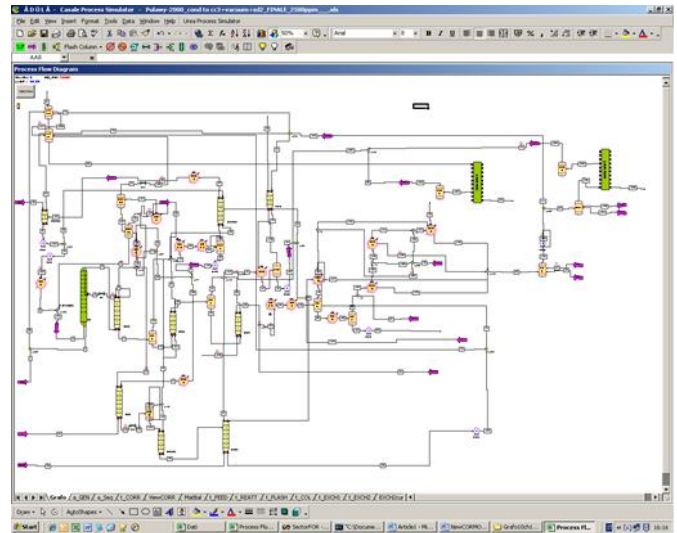
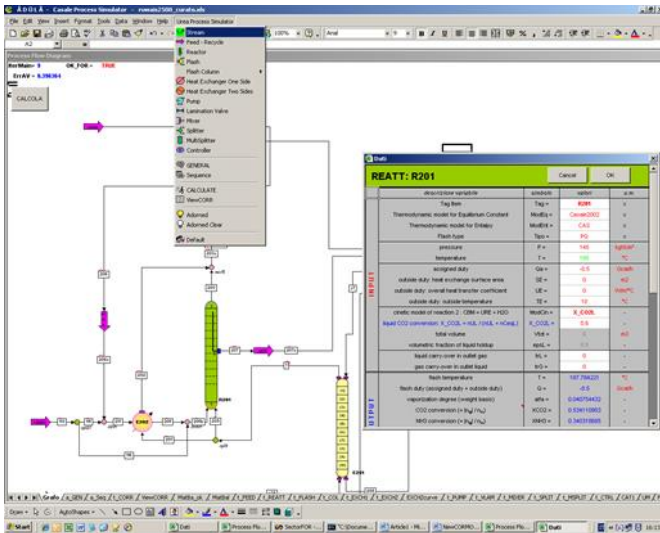
Title: "Conversion process of anhydrous off-gas stream coming from melamine synthesis plants into urea"

Inventor: **G.Cavuoti**, A. De Amicis.

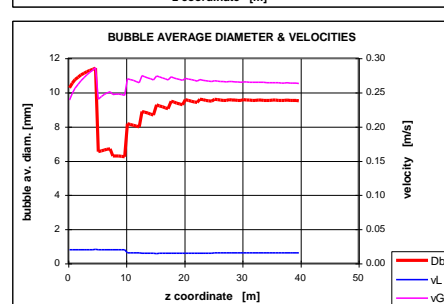
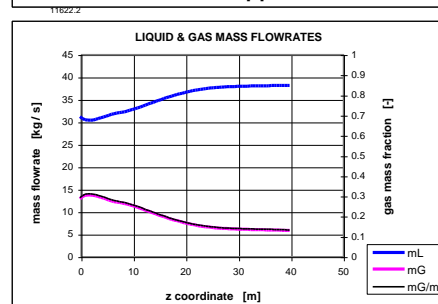
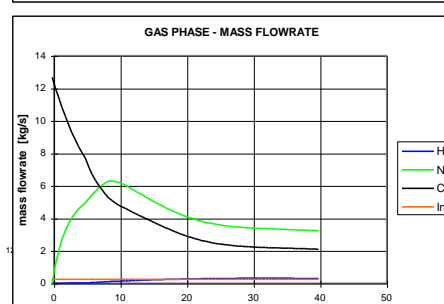
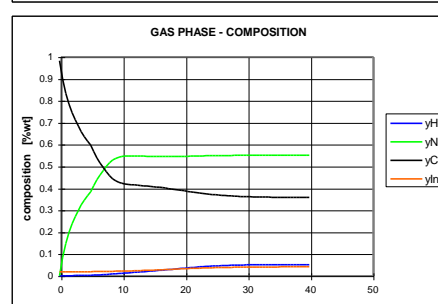
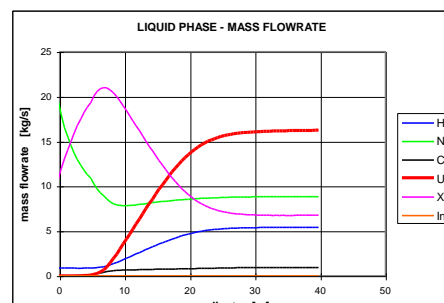
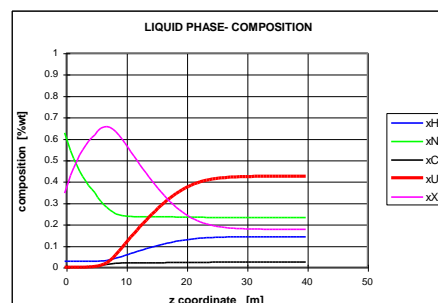
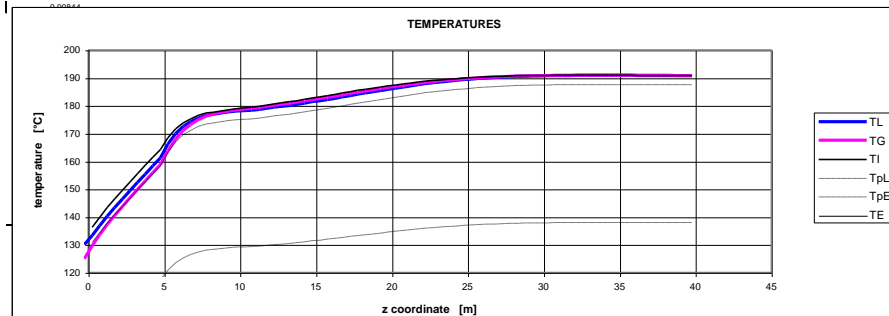
PROCESS SIMULATOR WITH NOT EQUILIBRIUM PLUG-FLOW EQUIPMENTS

COMPUTER CODE : Fortran 90 - GRAPHIC INTERFACE : VisualBasic for Application (Excel)

EXAMPLE OF SIMULATION OF A UREA PLANT

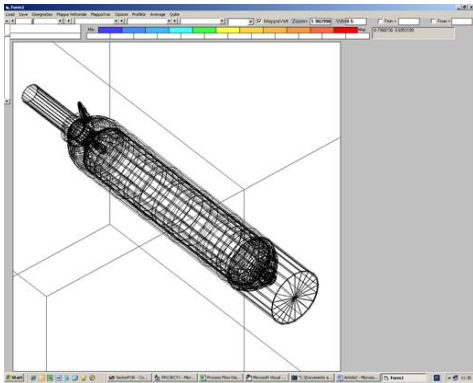


REACT R101

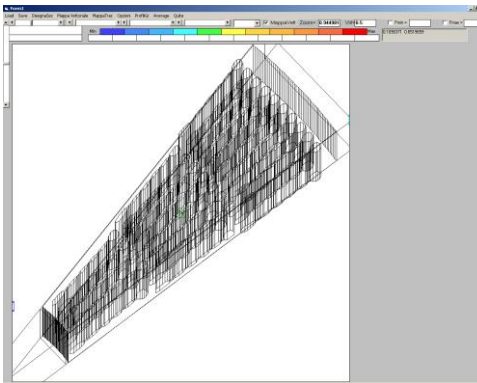


SECTOR3D - 3D SIMULATION OF FIXED BED, PLATE-COOLED CATALYTIC REACTORS

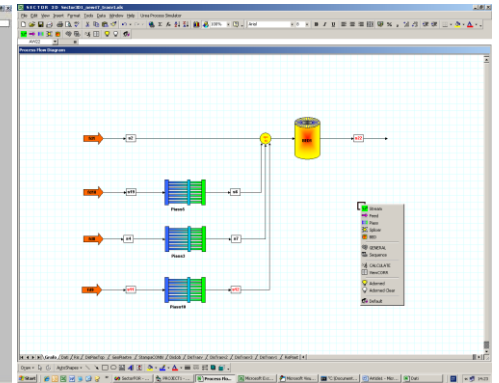
ALGORITHM : Finite volumes - CODE : Fortran 90 – GRAPHIC INTERFACE : VisualBasic



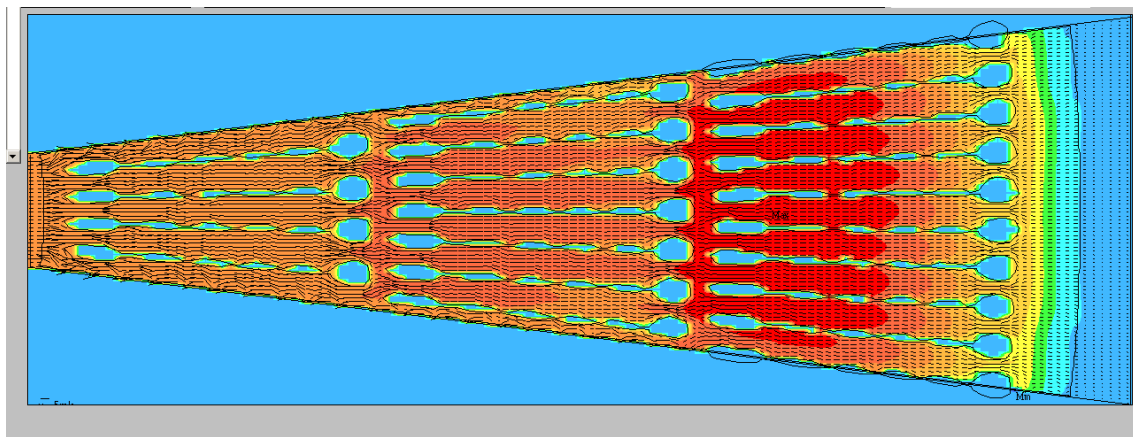
Graphic Interface



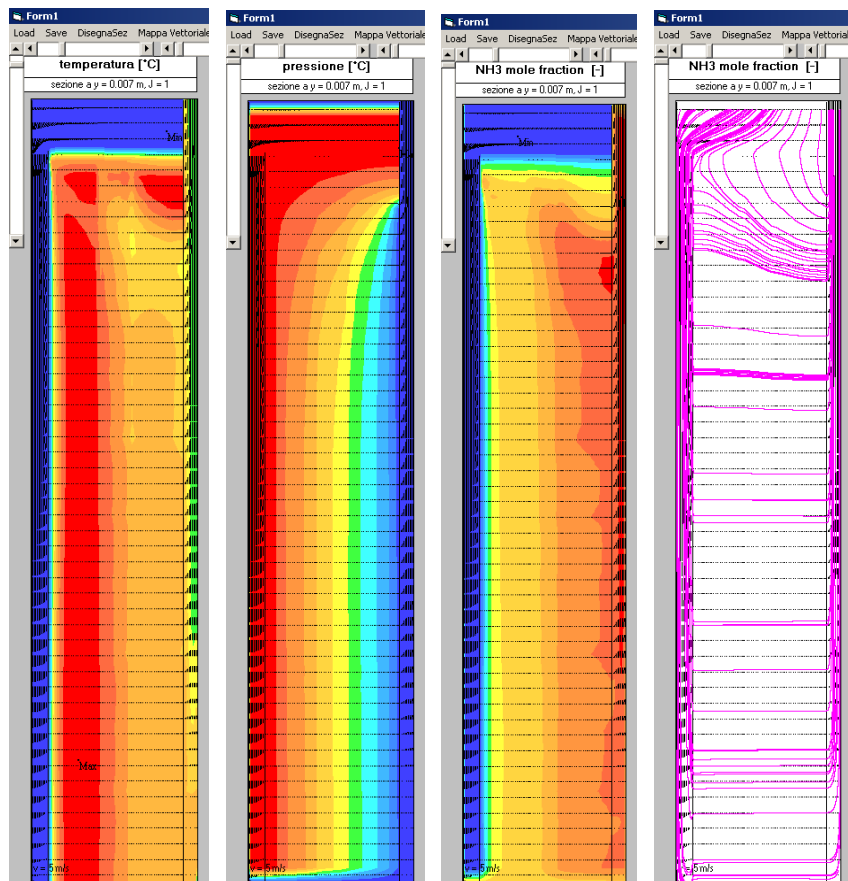
Radial Cooling Plates Ammonia Reactor



Flowsheet Interface



Radial Cooling Plates Methanol Reactor – Gas Temperature Field



Radial-Axial Cooling Plates Ammonia Reactor – Centerline Temperature, Pressure, NH3 Composition, Particle Path Fields