Papers on **APPLIED NUMERICAL METHODS** by PSE-Lab

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**Keywords:** Applied numerical methods; Numerical calculus; Algorithms; Algebraic systems (AE); Ordinary Differential Equations (ODE); Differential and Algebraic Equations (DAE); Multidimensional optimization; Analytic Hierarchy Process (AHP); Case studies; Object oriented programming; Procedural programming; Algorithms; Optimization of the CPU time.

(16) **OBJECTS ARE NOT PROCEDURES: WHY IT IS WORTH QUITTING FORTRAN TO ENTER C++**
D. Manca, G. Buzzi Ferraris

(18) **OBJECTS ARE NOT PROCEDURES: WHY IT IS WORTH QUITTING FORTRAN TO ENTER C++**
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(19) **NUMERICAL INTEGRATION OF LARGE KINETIC SYSTEMS**
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D. Manca, A. Berta, G. Buzzi Ferraris, E. Ranzi, G. Mariotti
First European Congress on Chemical and Process Engineering, ECCE 1, Firenze, Italy, May 4-7, pp. 21-24, (1997)

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http://dx.doi.org/10.1016/S0098-1354(98)00233-6

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D. Manca, G. Buzzi-Ferraris, T. Faravelli and E. Ranzi
Combustion Theory and Modelling, 5, 185-199, (2001)
http://dx.doi.org/10.1088/1366-7830/5/2/304

(46) **NUMERICAL SOLUTION OF MONODIMENSIONAL COMBUSTION MODELS**
G. Buzzi Ferraris, S. Granata, D. Manca, T. Faravelli, E. Ranzi
Proceedings of Combustion and the Environment, IX.22, S. Margherita Ligure, (2001)

(58) **IMPROVED ODE INTEGRATOR AND MASS TRANSFER APPROACH FOR SIMULATING A CYCLIC ADSORPTION SIMULATION**
R. S. Todd, G. Buzzi Ferraris, D. Manca, P. A. Webley
http://dx.doi.org/10.1016/S0098-1354(03)00003-6
MATHEMATICAL MODELING OF THE EVAPORATION AND COMBUSTION OF A SINGLE N-HEPTANE DROPLET UNDER MICROGRAVITY CONDITIONS
M. Perego, S. Corno, G. Buzzi Ferraris, T. Faravelli, D. Manca, E. Ranzi, T. Parra

BZZMATH: AN OBJECT ORIENTED NUMERICAL PROJECT
D. Manca, G. Buzzi Ferraris
Chemical Engineering Transactions, 6, 209-214, (2005)

BZZMATH: AN OBJECT ORIENTED LIBRARY FOR APPLIED NUMERICAL ANALYSIS
D. Manca, G. Buzzi Ferraris

LARGE SCALE ALGEBRAIC SYSTEMS
G. Buzzi Ferraris, D. Manca
http://dx.doi.org/10.1002/9783527619856.ch2

THE SOLUTION OF DAE SYSTEMS BY A NUMERICALLY ROBUST AND EFFICIENT SOLVER
D. Manca, G. Buzzi-Ferraris
Computer Aided Chemical Engineering, 24, 93-98, (2007)
http://dx.doi.org/10.1016/S1570-7946(07)80039-3

NUMERICAL SOLUTION OF DAE PROBLEMS
D. Manca, G. Buzzi-Ferraris

THE SOLUTION OF VERY LARGE NON-LINEAR ALGEBRAIC SYSTEMS
D. Manca, G. Buzzi Ferraris
http://dx.doi.org/10.1016/S1570-7946(08)80103-4

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Davide Manca, Guido Buzzi-Ferraris, Alberto Cuoci, Alessio Frassoldati
http://dx.doi.org/10.1016/j.compchemeng.2009.04.010