

## 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++**  
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- (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**  
D. Manca, T. Faravelli, G. Pennati, G. Buzzi Ferraris, E. Ranzi  
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- (22) **THERMOCHEMICAL OSCILLATIONS AFFECT FLUID DYNAMICS COMPUTATIONS OF METHANE COMBUSTION**  
D. Manca, A. Berta, G. Buzzi Ferraris, E. Ranzi, G. Mariotti  
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- (28) **OPTIMIZATION OF A TURBOGAS COMBUSTION CHAMBER**  
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- (30) **BZZODE: A NEW C++ CLASS FOR THE SOLUTION OF STIFF AND NON-STIFF ORDINARY DIFFERENTIAL EQUATION SYSTEMS**  
G. Buzzi Ferraris, D. Manca  
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[http://dx.doi.org/10.1016/S0098-1354\(98\)00233-6](http://dx.doi.org/10.1016/S0098-1354(98)00233-6)
- (41) **NUMERICAL PROBLEMS IN THE SOLUTION OF OXIDATION AND COMBUSTION MODELS**  
D. Manca, G. Buzzi-Ferraris, T. Faravelli and E. Ranzi  
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G. Buzzi Ferraris, S. Granata, D. Manca, T. Faravelli, E. Ranzi  
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- (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  
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- (60) **MATHEMATICAL MODELING OF THE EVAPORATION AND COMBUSTION OF A SINGLE N-HEPTANE DROPLET UNDER MICROGRAVITY CONDITIONS**  
 M. Pergo, S. Corno, G. Buzzi Ferraris, T. Faravelli, D. Manca, E. Ranzi, T. Parra  
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- (80) **BZZMATH: AN OBJECT ORIENTED NUMERICAL PROJECT**  
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- (96) **NUMERICAL SOLUTION OF DAE PROBLEMS**  
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- (113) **THE SOLUTION OF VERY LARGE NON-LINEAR ALGEBRAIC SYSTEMS**  
 D. Manca, G. Buzzi Ferraris  
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