Sergio Hoyas
Departamento de Informática
ETS Ingeniería, Universidad de Valencia
sergio@torroja.dmt.upm.es
sergio.hoyas@uv.es

Present Possition	Ayudante doctor, 12/01/07. Department of informatics, Universidad de Valencia
Previous Experience	Juan de La Cierva Posdoctoral fellowship, 01/01/05-11/01/07. School of Aeronautics, U.P. de Madrid Assistant Teacher 12/10/99-31/12/04 Faculty of Chemistry, Universidad de Castilla-la Mancha
Biographical Data	Birthdate: February 10, 1975 Place of Birth: Madrid, Spain. Citizenship: Spanish Languages: Spanish, English.
Education	Ph.D. (cum laude) Applied Mathematics, December 2003, Title: "*Bernard-Marangoni convection in annular geometry*". Supervisors: Prof. Henar Herrero, Dr. Ana Mancho and Prof. Rosa Pardo Universidad Complutense de Madrid, Spain. Diploma, Applied Mathematics, September 2001, Title: "*Bifurcation in elliptic systems coupled on the boundary*". Supervisor: Dr. Rosa Pardo, Universidad Complutense de Madrid, Spain. Mathematics Degree, branch of Astronomy and Mechanics. June 1999, Universidad Complutense de Madrid, Spain.
Teaching Experience	Assistant teacher, Universidad de Valencia, 2007 - present. Computer structure: Theory and practics Advanced Computers arquitecture: practics Operative systems: practics Parallel algoritmhs: practics

Teaching Assistant, Universidad de Castilla-la Mancha, 1999 - 2004.

Mathematics:	Mathematics for engineers
Computing:	One-semester course on introduction to computing (6h) and Matlab (39h).

Computing Experience

Member of administration staff, Computational Fluid Dynamics Lab, School of Aeronautics, UPM.

System manager and webmaster, Department of Applied Mathematics, UCLM.

Operative systems: Windows and Linux, system manager.

Languages: Html, LaTeX, JavaScript.

Text processors: vim, kyle, nedit (Linux), WinEdt, Swp4.0 (Windows).

High Level Languages: C/C++, Fortran*, Matlab*, Bash.

Parallel Languages: OpenMP, MPI.

Office suite: Microsoft office (Windows), OpenOffice (Linux)

Designed and ran one of the three programs that tested MareNostrum, the most powerfull Supercomputer in Europe on 2004

Research Interests

Turbulence Dynamics, Super-computation, Computational Biology.

Past: Dynamical systems.
Bifurcation theory.
Nonlinear functional analysis.

Refereed Publications

1. *"Heat transfer analysis of intermittent grinding ".* J. Pérez, S. Hoyas, D. L. Skuratov, Yu. L. Ratis, I. A. Selezneva, P. Fernandez de Córdoba and J. F.Urchueguía, Int. J. Heat Mass Tra., 51 (2008) 41324138.

2. *"Turbulent fluctuations above the buffer layer of wall-bounded flows ".* J. Jiménez and S. Hoyas, J. Fluid. Mech. In press, 2008.

3. *"Reynolds number dependence of the Reynolds-stress budgets in channels ".* S. Hoyas and J. Jiménez. Phys. of Fluids. In press, 2008.

4. *"Chebyshev collocation for optimal control in a thermoconvective flow".* M.C. Navarro, H. Herrero and S. Hoyas. Communications in Computational Physics. Accepted, 2008.

5. *"Mathematical modelling of Ru(VI)-Catalyzed Oxidation of Alcohols by Hexacyanoferrate(III)".* O. Sanchez, A.E. Mucientes, H. Herrero and S. Hoyas. J.Math.Chem. J. Math. Chem. 42 (3): 447-459 OCT 2007

6. *"Scaling of the velocity fluctuations in turbulent channels up to $Re_\tau = 2000$"*. S. Hoyas and J. Jiménez. Phys. of Fluids. **18**,1 2006. [**18 cites**]

7. *"Bénard-Marangoni convection in a differentially heated cylindrical cavity"*. S. Hoyas, A.M. Mancho, H. Herrero, N. Garnier and A. Chiffaudell. Phys. of Fluids. **17**, 2005. [**7 cites**]

8. *"Thermocapillary and thermogravitatory waves in a convection problem"*. S. Hoyas, H. Herrero and A.M. Mancho, Theoretical and Computational fluid dynamics, **18** 309–321, 2004.

9. *"Chebyshev Collocation for a Convective Problem in Primitive Variables Formulation"*. H. Herrero, S. Hoyas A. Donoso, A.M. Mancho, J.M. Chacon, R.F. Portugués and B. Yeste. J. Scientific Computing. **18** (2),315–328, 2003.

10. *"Bifurcation diversity of dynamic thermocapillarity liquid layers"*. S. Hoyas, H. Herrero and A.M. Mancho. Physical Review E, **66**, 2002. [**7 cites**]

11. *"Thermal convection in an annulus heated Laterally"*. S. Hoyas, H. Herrero and A.M. Mancho. J. Phys. A: Math Gen. **35**, 4067-4083, 2002. [**13 cites**]

12. *"Nonlinear planes waves in a convection model"*. A.M. Mancho, H. Herrero, L. Vázquez, and S. Hoyas. Int. J. of Bifurcat. Chaos. **11** (11), 2867–2874, 2001.

Non refereed communications and divulgation articles

1. *"A Grand Challenge DNS at BSC "*. S. Hoyas and J. Jiménez.
http://www.hpcwire.com/hpc/767959.html.
Also at http://www.supercomputingonline.com/article.php?sid=11775

2. *"Channel 2000: Computing wall turbulence at experimental Reynolds numbers "*.
S. Hoyas and J. Jiménez. DEISA Newsletter
http://www.deisa.org/files/DEISA_Newsletter_Vol2_06.pdf

3. *"Scaling of the velocity fluctuations in turbulent channels up to $Re_\tau = 2003$ "*.
S. Hoyas and J. Jiménez,
http://www.stanford.edu/group/ctr/ResBriefs/temp05/jimenez.pdf

Contributions at Conferences and Seminars

1. *Reynolds number effects in the Reynolds stress statistics and balances*, WALLTURB (Eureopean Synergy for the Assessment of Wall Turbulence) - 18 month meeting, Munich October 9-11 2006

2. *Channel 2000: A highly parallel algorithm for computing wall turbulence using 2K processors*, DEISA (Distributed European Infraestructure for Supercomputating Applications) Training Session, Paris July 3-5, 2006

3. *Computing wall turbulence at experimental Reynolds Numbers*, DEISA symposium, Bologna, Italy, 4 - 5 May, 2006

4. *Large-box DNS of a turbulent channel at $Re_\tau \approx 2000$*, APS Division of Fluid Dynamics 58th Annual Meeting (DFD05), Chicago, USA, 2005.

5. *DNS in Turbulent channels using up to 2100 processors*, CEDYA XIX, Leganés, Spain, 2005.

6. *Influence Rayleigh and Marangoni numbers in Thermal convection in a cylindrical annulus*, International Marangoni association, IMA-2, Brussels, 2004.

7. *A Runge-Kutta solver for convection problems*, I jornada sobre inestabilidades hidrodinicas, Ciudad Real, Spain, 2004.

8. *Influence of Aspect Ratio in Thermal Convection in a Cylindrical Annulus*, 13th Taylor-Couette Workshop, Barcelona, Spain, 2003.

9. *Codimension two bifurcations un a Bénard-Marangoni problem*, XVIII CEDYA/VIII CMA, Tarragona, Spain, 2003.

10. *Bifurcation diversity in thermocapillary layers*, Eleventh Annual Conference of the CFD Society of Canada (CFD03), Vancouver, Canada, 2003.

11. *Influence of aspect ratio in dynamic thermocapillary layers*, Nonlinear waves 2002, Spain, 2002.

12. *Thermal convection in a cylindrical annulus. A numerical approach*, Non-equilibrium phenomena and phase transitions in complex systems Avila, Spain, 2002.

13. *A model of convection in cylindrical geometry*, No lineal 2002, Spain, 2002.

14. *Codimension-two bifurcations in laterally heated convection*, No lineal 2002, Spain, 2002.

15. *A numerical study of a convective problem in cylindrical geometry*, CEDYA XVII, Salamanca, Spain, 2001.

16. *Nonlinear plane waves in a convection model*, CEDYA XVII, Salamanca, Spain, 2001.

17. *Original formulation for convective problems in cylindrical domains*, ICFD Conference on Numerical Methods for Fluid Dynamics, Oxford, UK, 2001.

18. *Thermal convection in a cylindrical annulus heated laterally*, ICOSAHOM'01, Uppsala, Sweden, 2001.

19. *Numerical model for Thermal convection in a cylindrical annulus heated laterally*, Nonlinear waves, Ciudad Real, Spain, 2001.

20. *Heat transfer by convection in a non convex domain*, No Lineal 2000, Almagro, Spain, 2000.

June 30, 2008