Simon Mendez

Researcher at CNRS (HDR)
IMAG, Université de Montpellier. France

Research interests

- Computational Fluid Dynamics
- Direct and Large-Eddy Simulations
- Cardiovascular biomechanics
- Micro- and macro-circulation
- Simulations for medical imaging

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PROFESSIONAL BACKGROUND

2010-   **Researcher at CNRS at University of Montpellier in the Institute of Montpellier Alexander Grothendieck (IMAG).**
- *Numerical simulation of blood flow for cardiovascular applications*
- *Blood and red blood cell modeling and simulations*

2010-   **Assistant Teacher at Polytech'Montpellier (engineering school).**
- *Mathematical methods for engineers*
- *Post-processing of experimental data*
- *Basics of Fluid Mechanics*

2008-2009   **Postdoctoral fellow at Stanford University in the Center for Turbulence Research.**
Advisors. Prof. Parviz Moin and Prof. Sanjiva Lele, Stanford University.

- *Large-Eddy Simulations of supersonic jet noise*

2007-2008   **Postdoctoral fellow at CERFACS in CFD-Combustion group.**
Advisors. Prof. Franck Nicoud, University Montpellier II and Thierry Poinsot, Research Director at CNRS, IMFT Toulouse

- *Development and implementation of complex boundary conditions for multi-perforated plates in the CERFACS code, AVBP*
Implementation of an internal boundary condition reproducing a multi-perforated plate and coupling both sides independently of the grid

- *Numerical investigation of the acoustic behavior of a perforated plate*
Simulations of the behavior of the flow through a perforated plate submitted to an acoustic perturbation. Study of the relation between the flow and the acoustic response

2008   Teaching in aerodynamics for Undergraduate students for Masters Degree in Aeronautical Engineering. ENSICA Toulouse (France).

2004-2007   **Ph.D. at CERFACS (preceded by a 7-month training period)**
Advisor: Prof. Franck Nicoud, University Montpellier II

Ph.D. funded by the European project INTELLECT-DM (contract of the FP6)

- *Numerical simulation and modeling of the flow around multi-perforated plates*

Design of a new academic periodic configuration for simulations of full-coverage film cooling (film cooling through a multi-perforated plate) in order to :
- Perform wall-resolved Large-Eddy Simulations of the flow around a perforated plate with and without cooling,
- Develop, implement and validate a homogeneous model to account for full-coverage film cooling in numerical simulations where the effusion jets are not resolved.

2006	**Selection for the CTR Stanford University Summer Program 2006**

Collaboration with J. D. Eldredge, Assistant Professor at University of California, Los Angeles (USA) and G. Iaccarino, Professor at Stanford University (USA)
¬ *Numerical investigation and preliminary modeling of a turbulent flow over a multi-perforated plate*
- Influence of numerical parameters on the results of periodic numerical simulations of the flow around perforated plates.
- Comparisons between the CERFACS and the CTR LES codes (AVBP and CDP) in collaboration with M. Shoeybi, Ph.D. student at CTR.

2003	**Research training (2 months) at Institut de Mécanique des Fluides de Toulouse**

Advisors: Jacques Magnaudet, Research Director at CNRS and Prof. Dominique Legendre, IMFT Toulouse

Numerical simulations of the two-phase flow filling of a water tank
Two-phase flow simulations with the IMFT code JADIM using a Volume Of Fluid approach. Study of the mechanisms leading to bubble formation during the initial phase of the filling.

EDUCATION

2004-2007	**Ph.D. in Applied Mathematics** (defended in November 2007) *University Montpellier II (France)*
2003-2004	**Masters of Science in Fluid Dynamics** *Institut National Polytechnique de Toulouse (France)*
2001-2004	**Masters Degree in Engineering: Fluid Mechanics and Energetics** *Ecole Nationale Supérieure d'Electrotechnique, d'Electronique, d'Informatique, d'Hydraulique et des Télécommunications (ENSEEIHT) de Toulouse (France).*

LANGUAGES AND COMPUTER SKILLS

Languages	*French:* Native *English:* Fluent *Spanish:* Fluent
Computer	*Programming*: FORTRAN 90, MPI, C++, Matlab, Maple *Numerical simulation*: YALES2BIO (I3M), YALES2 (CORIA, UMR 6614), CDP (CTR Stanford), AVBP (CERFACS/IFP), JADIM (IMFT), Fluent *Software*: TECPLOT, ENSIGHT, Fieldview, Paraview, Igor, ICEM-CFD, Gambit, CENTAUR-SOFT, CFD-GEOM, Gridgen, Git, Ansys *System:* UNIX, Linux, Windows, MAC OS X

REVIEWER
Journal of Fluid Mechanics, Annals of Biomedical Engineering, Physical Review Fluids, Physical Review E, Physical Review Letters, Rheologica Acta, Journal of Computational Physics, International Journal of Computational Fluid Dynamics, Computer Methods in Applied Mechanics and Engineering, International Journal

of Heat and Fluid Flow, AIAA Journal, Aerospace Science and Technology, Combustion and Flame, European Journal of Mechanics/B Fluids.

PUBLICATIONS

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ResearcherID : Q-8739-2016

Papers in refereed journals

30. Taraconat, P., Gineys, J.-P., Isèbe, D., Nicoud, F. and Mendez, S., 2019. Numerical simulation of deformable particles in a Coulter counter, accepted in *International Journal for Numerical Methods in Biomedical Engineering,* Vol 35(11), e3243. https://doi.org/10.1002/cnm.3243

29. Iss, C., Midou, D., Moreau, A., Held, D., Charrier, A., Mendez, S., Viallat, A. and Helfer, E., 2019. Self-organization of red blood cell suspensions under confined 2D flows, *Soft Matter,* Vol. 15, pages 2971-2980. doi : https://doi.org/10.1039/C8SM02571A

28. Méndez Rojano, R., Mendez, S., Lucor, D., Ranc, A., Giansily-Blaizot, M., Schved, J.-F. and Nicoud, F., 2019. Kinetics of the coagulation cascade including the contact activation system: Sensitivity analysis and model reduction, *Biomechanics and Modeling in Mechanobiology,* Vol. 18(4), pages 1139-1153. doi: 10.1007/s10237-019-01134-4

27. Puiseux, T., Sewonu, A., Meyrignac, O., Rousseau, H., Nicoud, F., Mendez, S. and Moreno., R., 2019. Reconciling PC-MRI and CFD: an in-vitro study, *NMR in Biomedicine*, Vol. 32(5), e4063. https://doi.org/10.1002/nbm.4063

26. Mendez, S. and Abkarian, M., In-plane elasticity controls the full dynamics of red blood cells in shear flow, 2018. *Physical Review Fluids*, Vol. 3, 101101. https://doi.org/10.1103/PhysRevFluids.3.101101

25. Mauer, J.*, Mendez, S.*, Lanotte, L., Nicoud, F., Abkarian, M., Gompper, G. and Fedosov, D. A., 2018. Flow-Induced Transitions of Red Blood Cell Shapes under Shear, *Physical Review Letters,* Vol 121, 118103. https://doi.org/10.1103/PhysRevLett.121.118103

24. Méndez Rojano, R., Mendez, S. & Nicoud, F., 2018. Introducing the pro-coagulant contact system in the numerical assessment of device-related thrombosis, *Biomechanics and Modeling in Mechanobiology,* Vol. 17(3), pages 815-826. https://doi.org/10.1007/s10237-017-0994-3

23. Sigüenza, J.*, Pott, D.*, Mendez, S., Sonntag, S. J., Kaufmann, T. A. S., Steinseifer, U. & Nicoud, F., 2018. Fluid-structure interaction of a pulsatile flow with an aortic valve model: a combined experimental and numerical study, *International Journal for Numerical Methods in Biomedical Engineering* Vol. 34(4), e2945 pages 1-19. https://doi.org/10.1002/cnm.2945

22. Assi, K. C., Gay, E., Chnafa, C., Mendez, S., Nicoud, F. Abascal, J. F. P. J., Lantelme, P., Tournoux, F. & Garcia, D., 2017. Intraventricular vector flow mapping–a Doppler-based regularized problem with automatic model selection. *Physics in Medicine and Biology,* Vol. 62(17), pages 7131-7147. https://doi.org/10.1088/1361-6560/aa7fe7

21. Sigüenza, J., Mendez, S. & Nicoud, F., 2017. How should the optical tweezers experiment be used to characterize the red blood cell membrane mechanics?, *Biomechanics and Modeling in Mechanobiology,* Vol. 16(5), pages 1645-1657. https://doi.org/10.1007/s10237-017-0910-x

20. Zmijanovic, V., Mendez, S., Moureau, V. and Nicoud, F., 2017. About the Numerical Robustness of Biomedical Benchmark Cases: Interlaboratory FDA's Idealized Medical Device, *International Journal for Numerical Methods in Biomedical Engineering,* Vol. 33(1), e02789 pages 1-17. https://doi.org/10.1002/cnm.2789

19. Lanotte, L., Mauer, J., Mendez, S., Fedosov, D. A., Fromental, J.-M., Claveria, V., Nicoud, F., Gompper, G. and Abkarian, M., 2016. Red cells dynamic morphologies govern blood shear thinning under microcirculatory flow conditions, *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 113(47), pages 13289-13294. https://doi.org/10.1073/pnas.1608074113

18. Sigüenza, J., Mendez, S., Ambard, D., Dubois, F., Jourdan, F., Mozul, R. & Nicoud, F., 2016. Validation of an immersed thick boundary method for simulating fluid-structure interactions of deformable membranes, *Journal of Computational Physics,* Vol. 322, pages 723-746. https://doi.org/10.1016/j.jcp.2016.06.041

17. Chnafa, C., Mendez, S. & Nicoud, F., 2016. Image-based simulations show important flow fluctuations in a normal left ventricle: what could be the implications?, *Annals of Biomedical Engineering,* Vol. 44(11), pages 3346-3358. https://doi.org/10.1007/s10439-016-1614-6

16. Loiseau, E., Massiera, G., Mendez, S., Aguilar-Martinez, P. & Abkarian, M., 2015. Microfluidic study of enhanced deposition of sickle cells at acute corners and its possible role in vaso-occlusion, *Biophysical Journal,* Vol. 108, pages 2623-2632. https://doi.org/10.1016/j.bpj.2015.04.018

15. Martins Afonso, M., Mendez, S. & Nicoud, F., 2014. On the damped oscillations of an elastic quasi-circular membrane in a two-dimensional incompressible fluid, *Journal of Fluid Mechanics,* Vol. 746, pages 300-331. https://doi.org/10.1017/jfm.2014.135

14. Boulkeraa, T., Ghenaiet, A., Mendez, S. & Mohammadi, B., 2014. A numerical optimization chain combining computational fluid dynamics and surrogate analysis for the aerodynamic design of airfoils, *Proceedings of the Institution of Mechanical Engineers, Part G : Journal of Aerospace Engineering,* Vol. 228, pages 1964-1981. https://doi.org/10.1177%2F0954410013506159

13. Sanchez, M., Ecker, O., Ambard, D., Jourdan, F., Nicoud, F., Mendez, S., Lejeune, J. Thines, L., Dufour, H., Brunel, H., Machi, P., Lobotesis, K., Bonafe, A. & Costalat, V., 2014. Intracranial aneurismal pulsatility as a new individual criterion for rupture risk evaluation: Biomechanical and numerical approach (IRRAs project), *the American Journal of Neuroradiology,* Vol. 35(9), pages 1765-1771. https://doi.org/10.3174/ajnr.A3949

12. Chnafa, C., Mendez, S. & Nicoud, F., 2014. Image-based large-eddy simulation in a realistic heart, *Computers and Fluids,* Vol. 94, pages 173-187. https://doi.org/10.1016/j.compfluid.2014.01.030

11. Mendez, S., Gibaud, E. & Nicoud, F., 2014. An unstructured solver for simulations of deformable particles in flows at arbitrary Reynolds numbers, *Journal of Computational Physics,* Vol. 256(1), pages 465-483. https://doi.org/10.1016/j.jcp.2013.08.061

10. Mendez, S., Shoeybi, M., Lele, S. K. & Moin, P., 2013. On the use of the Ffowcs Williams-Hawkings equation to predict far-field jet noise from large-eddy simulations, *International Journal of Aeroacoustics,* Vol. 12(1+2), pages 1-20. https://doi.org/10.1260%2F1475-472X.12.1-2.1

9. Sanchez, M., Ambard, D., Costalat, V., Mendez, S., Nicoud, F. & Jourdan, F., 2013. Biomechanical assessment of the individual risk of rupture of cerebral aneurysms: a proof of concept, *Annals of Biomedical Engineering,* Vol. 41(1), pages 28-40. https://doi.org/10.1007/s10439-012-0632-2

8. Mendez, S., Shoeybi, M., Sharma, A., Ham, F. E., Lele, S. K. & Moin, P., 2012. LES of perfectly expanded supersonic jets using an unstructured solver, *AIAA Journal,* Vol. 50(5), pages 1103-1118. https://doi.org/10.2514/1.J051211

7. Jaegle, F., Cabrit, O., Mendez, S. & Poinsot, T., 2010. Implementation methods of wall functions in cell-vertex numerical solvers, *Flow, Turbulence and Combustion,* Vol. 85(2), pages 245-272. https://doi.org/10.1007/s10494-010-9276-1

6. Mendez, S. & Eldredge J. D., 2009. Acoustic modeling of perforated plates with bias flow for Large-Eddy Simulations, *Journal of Computational Physics,* Vol. 228(13), pages 4757-4772. https://doi.org/10.1016/j.jcp.2009.03.026

5. Gullaud, E., Mendez, S., Sensiau, C. Nicoud, F. & Poinsot T., 2009. Effect of multiperforated plates on the acoustic modes in combustors, *Comptes Rendus de l'Académie des sciences, Mécanique,* Vol. 337(6-7), pages 406-414. https://doi.org/10.1016/j.crme.2009.06.020

4. Duchaine, F., Mendez, S., Nicoud, F., Corpron, A., Moureau, V. & Poinsot T., 2009. Conjugate Heat Transfer with Large Eddy Simulation for Gas Turbine Components, *Comptes Rendus de l'Académie des sciences, Mécanique,* Vol. 337(6-7), pages 550-561. https://doi.org/10.1016/j.crme.2009.06.005

3. Mendez, S. & Nicoud F. Adiabatic homogeneous model for flow around a multi-perforated plate, *AIAA Journal,* Vol. 46(10), pages 2623-2633. https://doi.org/10.2514/1.37008

2. Senoner, J.-M., Garcia, M., Mendez, S., Staffelbach, G., Vermorel, O. & Poinsot, T., 2008. Growth of rounding errors and repetitivity of Large-Eddy Simulations, *AIAA Journal,* Vol. 46(7), pages 1773-1781. https://doi.org/10.2514/1.34862

1. Mendez, S. & Nicoud F., 2008. Large-eddy simulation of a bi-periodic turbulent flow with effusion, *Journal of Fluid Mechanics*, Vol. 598, pages 27-65. https://doi.org/10.1017/S0022112007009664

Book chapters

Mendez, S. and Abkarian , A., 2019. Single Red Blood Cell Dynamics in Shear Flow and their Role in Hemorheology, *In "Dynamics of Blood Cell Suspensions in Microflows" Ed. A. Viallat and M. Abkarian, CRC Press.* https://doi.org/10.1201/b21806

Nicoud, F., Chnafa, C., Siguenza, J., Zmijanovic, V. and Mendez, S., 2018. Large-Eddy Simulation of Turbulence in Cardiovascular Flows, *In "Biomedical Technology. Modeling, Experiments and Simulation" Ed. P. Wriggers, T. Lenarz, Springer Series: Lecture Notes in Applied and Computational Mechanics, pages 147-167, 2018.* https://doi.org/10.1007/978-3-319-59548-1_9

Chnafa, C., Mendez, S., Moreno, R. & Nicoud, F., 2015. Using image-based CFD to investigate the intracardiac turbulence, *In " Modeling the Heart and the Circulatory System" Ed. A. Quarteroni. Springer MS&A, Vol. 14, 2015.* https://doi.org/10.1007/978-3-319-05230-4_4

Patents

Taraconat, P., Isèbe, D., Nicoud, F. & Mendez, S. Dispositif d'analyses médicales à traitement de signaux d'impédance, n°FR2000439. French patent application, Jan. 17th, 2020.

Taraconat, P., Isèbe, D., Nicoud, F. & Mendez, S. Focalisation numérique pour le tri des signaux d'impédance Coulter et l'amélioration de la volumétrie des cellules, n°FR1904410. French patent application, Apr. 25th, 2019.

Puiseux, T., Sewonu, A., Nicoud, F., Mendez, S. and Moreno., R. Dispositif et méthode animant un débit pulsé connu à l'intérieur d'une IRM, pour effectuer son évaluation de performances dans le domaine des mesures hémodynamiques, Patent Application n°FR3080761 A1 (2018) / WO 2019/211556 A1 (2019), May, 3rd, 2018.

Papers published in conference proceedings with reviews

Méndez, R., Mendez, S. & Nicoud, F., 2017. A CFD model to predict the initiation of thrombosis in blood contacting medical devices, 5th International Conference on Computational and Mathematical Biomedical Engineering - CMBE2017, 10–12 April 2017, Pittsburgh, PA, USA, P. Nithiarasu, A.M. Robertson (Eds.) ISSN 2227-9385, pages 86-89.

Mendez, S., Chnafa, C., Gibaud, E., Sigüenza, J., Moureau, V. & Nicoud, F., 2014. YALES2BIO: a Computational Fluid Dynamics Software Dedicated to the Prediction of Blood Flows in Biomedical Devices. In *Proceedings of the 5th International Conference on the Development of Biomedical Engineering in Vietnam, Ho Chi Minh City, VIETNAM, 16-18 June 2014. Published in IFMBE Proceedings Series,* Vol. 46, pages 7-10, 2015.

Mendez, S., Zmijanovic, V., Gibaud E., Sigüenza J. and Nicoud, F., 2015. Assessing Macroscopic Models for Hemolysis from Fully Resolved Simulations, *4th International Conference on Computational and Mathematical Biomedical Engineering - CMBE2015*, 29 June-1 July 2015, Cachan, France, pages 575-578.

Sigüenza J., Mendez S. & Nicoud, F., 2014. Characterisation of a dedicated mechanical model for red blood cells: numerical simulations of optical tweezers experiment, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 17(supp 1), pages 28-29.

Gibaud, E., Sigüenza, J., Mendez, S., & Nicoud, F., 2013. Towards numerical prediction of red blood cells dynamics within a cytometer, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 16, supp. 1, pages 9-10. 38th Congress of the Société de Biomécanique, 4-6 September 2013, Marseille, France.

Chnafa, C., Mendez, S., Nicoud, F., Moreno, R., Nottin, S. & Schuster, I., 2012. Image-based patient-specific simulation: a computational modelling of the human left heart haemodynamics, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol. 15, supp. 1, pages 74-75. 37th Congress of the Société de Biomécanique, 15-18 May 2012, Toulouse, France.

Lele, S. K., Mendez, S., Ryu, J., Nichols, J., Shoeybi, M. & Moin, P., 2010. Sources of high-speed jet noise: Analysis of LES data and modeling. In *Procedia Engineering*, Vol. 6, pages 84-93. Reprint of Procedia IUTAM, Vol. 1, IUTAM Symposium on Computational Aero-Acoustics for Aircraft Noise Prediction.

Mendez, S. & Nicoud, F., 2007. Numerical investigation of an anisothermal turbulent flow with effusion. In *5th Symposium on Turbulent and Shear Flow Phenomena. Munich, GERMANY,* Vol. 2, pages 791–796.

Mendez, S., Nicoud, F. & Poinsot, T., 2006. Large-eddy simulations of a turbulent flow around a multi-perforated plate. In *Complex effects in LES,* Vol. 56, pages 289–303. Conference *CY-LES 2005, Limassol, CYPRUS.*

Mendez, S., Nicoud, F. & Miron, P., 2005. Direct and large-eddy simulations of a turbulent flow with effusion. In *ERCOFTAC WORKSHOP. Direct and Large-Eddy Simulations 6. Poitiers France*, pages 415-422.

Papers presented at conferences with reviews

Chnafa, C., Mendez, S. & Nicoud, F., 2013. Multi-cycle large eddy simulations of the flow in a left heart. In *8th Symposium on Turbulent and Shear Flow Phenomena. Poitiers, FRANCE, 28-30 August 2013.*

Tayllamin, B., Mendez, S., Moreno, R., Nicoud, F. & Chau, M., 2010. Comparison of body-fitted and immersed boundary methods for biomechanical applications. In *Vth European Conference on Computational Fluid Dynamics. ECCOMAS CFD 2010. Lisbon, PORTUGAL, 14-17 June 2010.*

Mendez, S., Shoeybi, M., Sharma, A., Ham, F. E., Lele, S. K. & Moin, P., 2010. LES of perfectly-expanded supersonic jets: quality assessment and validation, *48th AIAA Aerospace Sciences Meeting Including The New Horizons Forum and Aerospace Exposition, Orlando, Florida, USA, 4-7 January 2010.* AIAA Paper 2010-271.

Gullaud, E., Mendez, S., Sensiau, C., Wolf, P. & Nicoud, F., 2009. Damping Effect of Perforated Plates on the Acoustics of Annular Combustors, *15th AIAA/CEAS Aeroacoustics Conference, 11-13 May 2009, Miami, Florida, USA.* AIAA Paper 2009-3260.

Dassé, J., Mendez, S. & Nicoud, F., 2008. Large-Eddy Simulation of the Acoustic Response of a Perforated Plate, *14th AIAA/CEAS Aeroacoustics Conference, 5-7 May 2008, Vancouver, British Columbia, CANADA.* AIAA-Paper 2008-3007.

Technical papers published in proceedings with reviews (no conference)

Mendez, S., Shoeybi, M., Sharma, A., Lele, S. K. & Moin, P., 2009. Post-processing of large-eddy simulations for jet noise predictions. In *CTR Annual Research Briefs 2009, NASA Ames - Stanford University,* pages 17-31.

Duchaine, F., Mendez, S., Nicoud, F., Corpron, A., Moureau, V. and Poinsot, T., 2008. Coupling heat transfer solvers and large eddy simulations for combustion applications. In *Proceedings of the CTR Summer Program 2008, NASA Ames - Stanford University,* pages 113-126.

Mendez, S., Eldredge, J. D., Nicoud, F., Poinsot, T., Shoeybi, M. & Iaccarino, G., 2006. Numerical investigation and preliminary modeling of a turbulent flow over a multi-perforated plate. In *Proceedings of the CTR Summer Program 2006, NASA Ames - Stanford University,* pages 57-72.

Papers presented at conferences/workshops without reviews

Gullaud, E., Mendez, S., Sensiau, C., Nicoud, F., and Poinsot, T., 2008. Effect of multiperforated plates on the acoustics of combustion chambers. In *2nd Workshop INCA*, 23-24 October 2008, CORIA, Rouen, FRANCE.

Duchaine, F., Mendez, S., Nicoud, F., Corpron, A., Moureau, V. and Poinsot, T., 2008. Conjugate heat transfer with large eddy simulation. Application to gas turbine components. In *2nd Workshop INCA*, 23-24 October 2008, CORIA, Rouen, FRANCE.

Mendez, S. & Nicoud, F., 2005. Large-eddy simulations of a periodic turbulent flow over a perforated plate. In *1st Workshop INCA*, pages 313-320, 20-21 October 2005, SNECMA, Villaroche, FRANCE.

Presentations at conferences/workshops without proceedings

Mendez, S. and Abkarian, M., 2017. Why do red blood cells roll in shear flow ? Blood Flow: Current State and Future Prospects, Institut Henri Poincaré, 9-11 October 2017, Paris, FRANCE.

Mauer, J., Lanotte, L., Mendez, S., Nicoud, F., Abkarian, M., Gompper, G. and Fedosov, D., 2017. Intricate dynamics and morphology of red blood cells under physiological flow conditions. 14th International Conference for Mesoscopic Methods in Engineering and Science, 17-21 July 2017, Nantes, FRANCE.

Lanotte, L., Mauer, J., Mendez, S., Fedosov, D. A., Fromental, J.-M., Claveria, V., Nicoud, F., Gompper, G. and Abkarian, M., 2017. A new look at blood shear-thinning. DPG Spring Meeting, 19-24 March 2017, Dresden, GERMANY.

Mauer, J. and Lanotte, L., Mendez, S., Claveria, V., Nicoud, F., Abkarian, M., Gompper, G. and Fedosov, D. A., 2017. Intricate dynamics and morphology of red blood cells under physiological flow conditions. DPG Spring Meeting, 19-24 March 2017, Dresden, GERMANY.

Mendez, S., Gibaud, E. and Nicoud, F., 2017. Red blood cells in high shear and strain rates: how numerical simulation can contribute. DPG Spring Meeting, 19-24 March 2017, Dresden, GERMANY.

Mendez, S., Lanotte, L., Abkarian, M. & Nicoud, F., 2016. Numerical simulations of red blood cells deformation at high shear rates, *22nd Congress of the European Society of Biomechanics (ESB2016)*, 10-13 July 2016, Lyon, FRANCE.

Zmijanovic, V., Mendez, S. & Nicoud, F., 2016. Predictive computation of the transitional flow in the FDA's idealized medical device, *22nd Congress of the European Society of Biomechanics (ESB2016)*, 10-13 July 2016, Lyon, FRANCE.

Chnafa, C., Gallo, D., Morbiducci, U., Mendez, S. & Nicoud, F., 2016. Exploration of the left ventricle flow and its instabilities through helicity in an image-based CFD model, *22nd Congress of the European Society of Biomechanics (ESB2016)*, 10-13 July 2016, Lyon, FRANCE.

Chnafa,C., Mendez, S. & Nicoud, F., 2016. Image-Based Simulations Show Significant Flow Fluctuations in a Normal Left Ventricle, *SB3C2016*, 28 June-3 July 2016, Convention Center National Harbor, MD, USA.

Sigüenza, J., Pott, D., Mendez, S., Sonntag, S., Steinseifer, U. & Nicoud, F., 2016. Dynamics of artificial aortic valves: A combined experimental and numerical study, *European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS Congress 2016*, 5-10 June 2016, Crete Island, GREECE.

Abkarian, M., Lanotte, L., Fromental, J.-M., Mendez, S., Fedosov, D., Gompper, G., Mauer, J., Claveria, V., 2015. A new look on blood shear thinning, *68th Annual Meeting of the APS Division of Fluid Dynamics*, 22-24 November 2015, Boston, Massachusetts, USA.

Baya Toda, H., Cabrit, O., Truffin, K., Bruneaux, G., Mendez, S. & Nicoud, F., 2015. Transient Impinging Jet in Crossflow as a Benchmark Case to Validate Unsteady LES, *13th US National Congress on Computational Mechanics,* 26-30 July 2015, San Diego, California, USA.

Chnafa, C., Mendez, S. & Nicoud, F., 2014. Accounting for turbulence in cardiovascular biomechanics, *6th European Conference on Computational Fluid Dynamics (WCCM XI – ECCM V - ECFD VI)*, 20-25 July 2014, Barcelona, SPAIN.

Mendez, S., Chnafa, C. & Nicoud, F., 2014. Towards the use of large-eddy simulations for the prediction of the blood flow in artificial organs, *6th European Conference on Computational Fluid Dynamics (WCCM XI – ECCM V - ECFD VI)*, 20-25 July 2014, Barcelona, SPAIN.

Sanchez, M., Ambard, D., Jourdan, F., Mendez, S., Bonafé, A. & Costalat, V., 2014. Intracranial aneurismal pulsatility as a new individual criterion for ruptura risk evaluation: Biomechanical and numerical approach (IRRAs project), *6th European Conference on Computational Fluid Dynamics (WCCM XI – ECCM V - ECFD VI)*, 20-25 July 2014, Barcelona, SPAIN.

Gibaud, E., Mendez, S., Isèbe, D. & Nicoud, F., 2014. Numerical modelling of the dynamics of isolated red blood cells flowing in a cytometer, *6th European Conference on Computational Fluid Dynamics (WCCM XI – ECCM V - ECFD VI)*, 20-25 July 2014, Barcelona, SPAIN.

Sigüenza, J., Mendez, S., Nicoud, F., Mozul, R., Dubois, F. & Ambard, D. Numerical methods for modeling the mechanics of flowing red blood cells using a front tracking immersed boundary method. *DynaCaps 2014: Dynamics of Capsules, Vesicles and Cells in Flow,* 15-18 July 2014, Compiègne, FRANCE.

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