

Short CV of Said Abboudi

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Full Professor : Université de Technologie de Belfort-Montbéliard (UTBM)

Laboratory : ICB UMR 6303, CNRS, Département COMM, Univ. de Bourgogne Franche-Comté UBFC, UTBM, 90010, Belfort Cedex, France

Responsible for the research theme: Thermophysical coupling and optimization of thermal systems

Developed axes and keywords: Thermal and mechanical modelling, inverse conduction and convection, Thermophysical coupling, heat and mass transfers, Applications : heat exchangers, thermal barrier, renewable energy, solidification, fuel cell....

Titles and diplomas

- **Doctorat d'Etat** : march 23 1988, University of Aix-Marseille 1

Sujet : Contribution à l'étude du transfert de chaleur, en régime instationnaire, entre parois et écoulement fluide en convection forcée, dans un conduit soumis à une condition de flux généralisée, approche numérique et détermination des coefficients de transfert "Métal-Fluide" par thermographie infrarouge.

Subject: Transient heat transfer between wall and forced convection flow in rectangular channel: numerical approach and estimation of heat transfer coefficient by infrared thermography.

- **Doctorat de 3ème cycle** : July 7 1982, Université of Aix-Marseille 1

Sujet : Contribution à la résolution spectrale des équations de la convection en milieu confiné: Analyse d'une méthode pseudo-spectrale Chebyshev de résolution de l'équation de Poisson (et Helmholtz).

Subject: Contribution to the spectral resolution of convection equations in a confined media: Analysis of a pseudo-spectral Chebyshev method of solving the Poisson (and Helmholtz) equation.

Main teaching activities

Engineer level

- Mathematics for engineer
- Heat transfers
- Numerical modelling of engineer problems
- Fluid mechanics
- Partial derivative equation
- Advance numerical modelling and computer codes
- Heat and transport phenomena

Master level

- Heat and mass transfer modelling
- Analyzis and optimization of systems
- Inverse methods in thermic
- Numerical methods in fluid mechanics
- Optimization of thermal systems

Main administrative activities

- Elected member of the Board of Directors of University of Technology of Compiègne: 1 mandate
- Elected member of the Board of Directors of University of Technology of Belfort-Montbéliard (UTBM): 3 mandates
- Vice-Chairman of the Board of Directors of the Polytechnic Institute of Sévenans: 1 mandate
- Elected member of the Scientific Council of the UTBM: 4 mandates
- Elected member of the Council of Studies and University Life of the UTBM: mandate in progress
- Elected member of the committee of the Mech. Engineering and Design Deprt of UTBM: 2 madates
- Member of several Specialist Commission and Selection Committee of the UTBM, UFC, UHA
- President of ASTUS: UTBM Sports Association: 1 mandate
- Member of the council of the Systems and Transport laboratory: 1 mandate
- Member of the Health and Safety Committee of the UTBM: 1 mandate
- Member elected to the IRTES Institute Council: 1 term
- Local representative of the doctoral school for the audition of PhD students
- Member elected to Academic Council of COMUE UBFC: mandate in progress
- Substitute member of the scientific council of the ICB: mandate in progress.

Production scientifiques

Supervisor and/or co supervisor of PhD thesis: 20

Supervisor and/or co supervisor of PhD thesis in progress: 6 (3 in cotutelle)

Supervisor and/or co supervisor of Master internship: 16

Individual and collective books: 4

International and national publications indexed in international databases [ACL]: 55

International and national publications not Listed in International databases [ACLN]: 17

Invited lecture to conferences: 5

International conferences [ACTI]: 140

National conferences [ACTN]: 45

Project reports and contracts: 12

Main collaborations

- University of Tlemcen, Alger (USTHB), Constantine, Oran, Kenchla, Oum El Bouagui
- University of Sousse, Tunis, Beja, Tunisia
- University of Kénitra, EMI Rabat, Morocco
- University of Beyrouth, Lebanon
- University of Dakar, Senegal
- University of Rimouski (UCAQ), Canada

Expertise of articles, scientific committees

Member of scientific committees

- American Journal of Heat and Mass Transfer, since 2014
- Journées internationales de thermique (JITH16) : since 2016.
- 2nd Intern. Conf. on Sciences of Mechanics, Oum el Bouaghi, Algeria, November 2008.
- Congrès National de Mécanique des Fluides. Alger 2012.
- CONV-14, Intern. Symp. on Convective Heat and Mass Transfer, Kusadasi, Turkey, June 8-13, 2014.
- Seminar on Advanced Mechanical Technologies, since 2014. Tlemcen. Algeria.

Regular expertise for international journals

1- Applied Thermal of Engineering, 2- Journal of Heat Transfer, 3- Numerical Heat Transfer, 4- Thermal Stresses, 5- Inverse Problem of Science Engineering, 6- Int. Journal of Thermal Sciences, 7- American Journal of Heat and Mass Transfer, 8- Journal of Heat and Mass Transfer, 9- Acta Mechanica, 10- Physical Sciences Research International, 11- Heat Mass Transfer, 12- Journal of Renewable and Sustainable Energy, 13- Thermal Sciences an International Journal, 14- Journal of Engineering Science and Technology, 15- Journal of Renewable and Sustainable Energy, 16- International Journal of Hydrogen Energy, 17- Science China_Ph_Mech_Astro.

Expertise for conferences

- Journées Internationales de Thermique JITH'13, Marrakech, november 2013.
- Intern. Symposium on Convective Heat and Mass Transfer CONV-14, Kusadasi, Turkey, June 8-13, 2014.
- Séminaire sur les Technologies Méca. Avancées (STEMA), Nov. 2011 et 2014. Tlemcen, Algérie.
- Intern. Conf. on Renewable Energy: Generation and Applications" ICREGA'16, february, Belfort.
- Journées INGEDOC des Jeunes chercheurs de l'UTBM, since 2013.

Expertise of projets and application files

- Project submitted to Europe-Africa research cooperation: ERAfrica, 2015
- Project of IDEX Toulouse: Multi-scale study of the powder-fiber mixture for the design of a processing of sheep's wool: application to the thermal insulation of buildings, 2015.
- Two application files for the scientific excellence award.
- Admissibility of the candidates on a position of Associate Professor at the University of Franche Comté (UFC), 2016.
- Expertise of an HDR defense file at the UFC, 2015.
- Expertise on applications for a thesis scholarship for Univ. of technology of Compiègne, 2016.

Participation in juries of theses and Masters

Reviewer of 6 theses

Examiner of 6 theses, 1 HDR.

Many Masters and Graduation Projects.

Some publications

International and national papers [ACL]

- [ACL 1] R. Bouchenafa, H. Hamidou, R. Saim, Oztop H. F., Kh. Al-Salem, **S. Abboudi**, *A computational work on turbulent flow and heat transfer in a channel fitted with inclined baffles*, Heat and Mass Transfer, (49), 761-774, 2013.
- [ACL 2] H. Benzenine, R. Saim, **S. Abboudi**, O. Imine. *Numerical analysis of a turbulent flow in a channel provided with transversal wavy baffles*. Thermal Science, 17(3):801-812, 2013.
- [ACL 3] B. Dadda, **S. Abboudi**, A. Ghezal. *Transient two-dimensional model of heat and mass transfer in a PEM fuel cell membrane*. International Journal of Hydrogen Energy, Vol. 38, 17, pp. 7092–7101, 2013.
- [ACL 4] A. Belazizia, S. Benissaad, **S. Abboudi**. *Numerical Study of Double Diffusion Natural Convection of Binary Fluid in a Square Enclosure with Partially Active Vertical Wall*. The Arabian Journal for Science and Engineering (AJSE), Vol. 38, Issue 12, pp 3459-3470, 2013.
- [ACL 5] A. Boulahia, **S. Abboudi**, M. Belkhiri. *Simulation of viscous and reactive hypersonic flows behaviour in a shock tube facility: TVD schemes and flux limiters application*. Journal of Applied Fluid Mechanics, Vol. 7, No. 2, pp. 315-328, 2014.
- [ACL 6] A. Belazizia, S. Benissaad, **S. Abboudi**. *Effect of Magnetic Field and Wall Conductivity on Conjugate Natural Convection in a Square Enclosure*. Arabian Journal for Science and Engineering, Vol. 39, Issue 6, pp 4977–4989, 2014.
- [ACL 7] B. Dadda, **S. Abboudi**, R. Zarrit, A. Ghezal. *Heat and Mass Transfer Influence on Potential Variation in a PEMFC Membrane*. International Journal of Hydrogen Energy. Vol. 39, Issue 27, pp. 15238–15245, sept. 2014.
- [ACL 8] G. Selka, A. N. Korti, **S. Abboudi**, R. Saim, Numerical study of thermal behaviour of building walls containing a phase change material, Mechanika, Vol. 20, n° 4, pp. 367-375, 2014.
- [ACL 9] G. Selka, A. N. Korti, **S. Abboudi**, *Dynamic thermal behavior of building using phase change materials for latent heat storage*, Thermal Science, Vol. 19, Suppl. 2, pp. S603-S613, 2015.
- [ACL 10] R. Bouchenafa, R. Saim, **S. Abboudi**. *Numerical Study of Forced Convection in a Turbulent Heat Sink Made of Several Rows of Blocks of Square Form*. Heat and Mass Transfer, Volume 51, Issue 9, pp 1301–1311, 2015.
- [ACL 11] R. Bouchenafa, R. Saim, **S. Abboudi**, H.F. Oztop, Effect of Position and Height of a Shield on Convective Heat Transfer Performances of Plate Fin Heat Sink. *International Journal of Numerical Methods for Heat & Fluid Flow*, Vol. 25 Iss: 5, pp.1047 - 1063. 2015.
- [ACL 12] A. Settar, R. Nebbali, B. Madani, **S. Abboudi**. Numerical Investigation of Convective Heat Transfer in a Plane Channel Filled with Metal Foam under Local Thermal Non-equilibrium. *Mechanics & Industry*, 16 5, 504, 2015.
- [ACL 13] H. Qanza, A. Maslouhi, **S. Abboudi**, A. Hmimou, *Numerical Estimation of Unsaturated Soil Hydrodynamic Parameters*. *International Journal of Innovation and Applied Studies IJIAS*, ISSN: 2028-9324, Vol. 10, No. 2, February 2015.
- [ACL 14] A. Settar, R. Nebbali, B. Madani, **S. Abboudi**. Numerical investigation on the wall-coated steam methane reformer improvement: effects of metal foam insertion and catalyst layer patterns. *International Journal of Hydrogen Energy*. Vol. 40, Issue 29, 3, 8966–8979, 2015.
- [ACL 15] A. Bourouis, A. Omara, **S. Abboudi**. Upward and downward conjugate mixed convection heat transfer in a partially porous cavity. *International Journal of Numerical Methods for Heat & Fluid Flow*, Vol. 26 Iss: 1, pp.159 – 188, 2016.
- [ACL 16] R. Saim., A. Abderrahim, H.F. Oztop, **S. Abboudi**, Kh. Al-Salem. Computational fluid dynamical analysis of turbulent flow in a channel equipped with double-pass solar air collector', *Progress in Computational Fluid Dynamics*, Vol. 15, No. 6, pp.396–402, 2015.

- [ACL 17] B. Rostane, K. Aliane, **S. Abboudi**. Three dimensional simulation for turbulent flow around prismatic obstacle with rounded downstream edge using the k- ω SST. *International Review of Mechanical Engineering (I.R.E.M.E.)*, Vol. 9, N. 3, ISSN 1970 - 8734 May 2015.
- [ACL 18] A. Belferrag, A. Kriker, **S. Abboudi**, S. Tie-Bi. Effect of granulometric correction of dune sand and addition of pneumatic waste metal fibers on shrinkage of mortar in the arid climates. *Journal of Cleaner Production JCLEPRO*, 112, Part 4, 3048-3056, 2016.
- [ACL 19] A. Bourouis, A. Omara, **S. Abboudi**. Numerical Approach of Thermal non Equilibrium Natural Convection in a Square Porous Cavity with Partially Thermally Active Side Walls. *Journal of Applied Fluid Mechanics*, Vol. 9, Special Issue 2, pp. 223-233, 2016.
- [ACL 20] A. N. Korti, **S. Abboudi**. Effects of Shot Sleeve Filling on Evolution of the Free Surface and Solidification in the High-Pressure Die Casting Machine. *International Journal of Metalcasting*, 1-17. DOI 10.1007/s40962-016-0051-5, 2016.
- [ACL 21] A. Belazizia, **S. Abboudi**, S. Benissaad Conjugate natural convection in a two-dimensional enclosure with top heated vertical wall. *Journal of Engineering Science and Technology* 11(10):1373-1384 · October 2016.
- [ACL 22] A. Aliane, **S. Abboudi** · C. Seladji · B. Guendouz. An illustrated review on solar absorption cooling experimental studies. *Renewable and Sustainable Energy Reviews*, 65:443-458 · November 2016.
- [ACL 23] H. Qanza, A. Maslouhi, **S. Abboudi**. Experience of inverse modeling for estimating hydraulic parameters of unsaturated soils. *Russian Meteorology and Hydrology* 41(11-12):779-788 · November 2016.
- [ACL 24] D Bennacer, R Saim, **S. Abboudi**, B Benameur. Interface calculation method improves multiproduct transport. *Oil & Gas Journal* 114 (12), 74, 2016.
- [ACL 25] H Benzenine, R Saim, **S. Abboudi**, O Imine. Convective Thermal Analysis of a Turbulent Flow in a Pipe with Two and Three Corrugated Baffles Arranged in Overlap. *American Journal of Heat and Mass Transfer*, vol 3, N° 6, 382-395, 2016.
- [ACL 26] A. Settar, R. Nebbali, B. Madani, **S. Abboudi**. Numerical study on the effects of the macropatterned active surfaces on the wall coated steam methane reformer performances, *International Journal of Hydrogen Energy* (2016). DOI: 10.1016/j.ijhydene.2016.05.221
- [ACL 27] - Y. Saad, R. Younes, **S. Abboudi**, A. Ilinca, C. Nohra. Progress in energy generation for Canadian remote sites. *Technologies and Materials for Renewable Energy, Environment and Sustainability*, AIP Conf. Proc. 1758, 020005 (2016); <http://dx.doi.org/10.1063/1.4959381>.
- [ACL 28] L. Marouani, **S. Abboudi**, S. Boulahrouz, Analysis of conjugated processes of film evaporation and condensation in a tubular heat exchanger. *The Canadian Journal of Chemical of Engineering*. Vol. 95, Issue 3, March 2017 Pages 559–567.
- [ACL 29] M. Moderres, **S. Abboudi**, M. Ihdene, S. Aberkane), A. Ghezal Numerical investigation of double-diffusive mixed convection in horizontal annulus partially filled with a porous medium. A paraitre dans Int. Journal of Numerical Methods of Heat and Fluid Flow.

Publications internationales et nationales non répertoriées dans les bases internationales [ACLN]

- [ACLN 1] A.N. Korti, M.Ch. Korti, **S. Abboudi**. *Minimizing air entrainment in the shot sleeve during injection stage of the HPDC machine*. *Journal of Materials Science and Engineering*, A3 (3) 153-161, 2013.
- [ACLN 2] A. Belazizia, S. Benissaad, **S. Abboudi**. *Steady laminar cooperating double diffusion natural convection of binary fluid in a Square Enclosure with Partially Active Vertical Wall*. *International Journal of Engineering and Innovative Technology (IJEIT)* Vol. 3, Issue 4, 455-461, 2013.
- [ACLN 3] Y. Tamene, **S. Abboudi** et C. Bougriou. Numerical and Economical Study of Thermal Insulation in Multi-layer Wall Exposed to Real Climatic Conditions. *Athens Journal of Technology Engineering*. Vol 1, Number 2, June 2014.

- [ACLN 4] M. Benramdane, MEA. Ghernaouet & **S. Abboudi**. Contribution to improving the performance coefficient of a solar absorption refrigeration system. *International Journal of Research and Reviews in Applied Sciences. IJRRAS Volume 21, Issue 2, November 2014.*
- [ACLN 5] M. Benramdane, MEA. Ghernaouet. **S. Abboudi**. Contribution to improving the thermal performance coefficient of a solar absorption refrigeration system. *International Journal of Research and Reviews in Applied Sciences IJRRAS, Volume 21, Issue 2, 2015.*
- [ACLN 6] M. Deghmoum, A. Ghezal, **S. Abboudi**. Analytical and numerical study of a pulsatile flow in presence of a magnetic field. *International Journal of Physical Sciences IJPS. Vol. 10(24), pp. 590-603, 30 December, 2015.*
- [ACLN 7] A. Aliane, Ch. Seladji, G. Bouhelal, A. **Abboudi**. Mathematical Modelling of a Solar Parabolic Trough Collector Coupling with an Absorption Machine. *International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181, IJERTV4IS020232. Vol. 4 Issue 02, February-2015.*

September 2017,

Said Abboudi,

