

Ahmed KTARI - Curriculum Vitae

Assistant Professor in Mechanical Engineering



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Age: 39 years

Civil status: Married, one child.

ORCID



EDUCATION

- 10/2009 - 04/2014 **PhD in Materials and Environment** (obtained with first class honors), Title of thesis: Thermo-mechanical fatigue behavior of AISI 4130 forged steel used in crankshafts application, National Engineering School of Sfax (ENIS), University of Sfax – Tunisia, in cooperation with Ecole des Mines d'Albi - France.
- 10/2007 - 06/2009 **Master of Research in Materials and Surfaces** (Major of the promotion), ENIS, University of Sfax – Tunisia, in cooperation with Ecole des Mines de Paris - France.
- 09/2004 - 06/2007 **National Diploma of Engineer in Materials engineering** (2nd of the promotion), ENIS, University of Sfax - Tunisia.
- 09/2002 – 06/2004 **Preparatory classes in Physics - Chemistry**, Sfax Preparatory Engineering Institute, University of Sfax - Tunisia.

PROFESSIONAL POSITIONS

- 09/2021 - 08/2024 **Assistant Research Scientist** at Texas A&M Engineering Experiment Station (TEES), Texas A&M University (TAMU), College Station, TX 77843, USA.
- 11/2018 - 08/2024 **Assistant Professor** in Mechanics and materials / Digital Casting at Arts et Métiers Institute of Technology, Aix en Provence - France.
- Since 10/2015 **Assistant Professor** in Mechanical Engineering at ENIS, University of Sfax – Tunisia.
- 10/2011 - 09/2015 **Lecturer** in Mechanical Engineering at National Engineering School of Sousse, University of Sousse – Tunisia.
- 09/2009 - 02/2011 **Contractual lecturer** in Mechanical Engineering at ENIS, University of Sfax – Tunisia.
- 09/2007 - 08/2008 **Engineer** in Mold Design and Manufacturing at VitaBrosse - Tunisia.

INTERNATIONAL STAGES AND COOPERATIONS

- 05/2016 **Invited researcher** in Centre Clément Ader at Ecole des Mines d'Albi (University of Toulouse - France) by Professor Farhad Rezaei-Aria (Head of SUMO group).
Research thematic: Numerical prediction of residual stresses and distortions generated during SLM process.
- 05/2011 - 07/2011 **Doctoral research training** in Centre Clément Ader at Ecole des Mines d'Albi - France.
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06/2012 - 08/2012 *Research thematic:*

- The validation of a crack propagation criterion based on Δ CTOD measured with 2D-Digital Image Correlation (DIC).
- The conduction of Low Cycle Fatigue tests to optimize the mechanical law behavior of AISI 4130 Steel material.

09/2008 - 02/2009 **Master research training** in Centre des Matériaux (Ecole des Mines de Paris - France) in cooperation with PSA Peugeot Citroen.

Research thematic: FE computation of thermal fatigue crack growth in cast iron.

COURSES TAUGHT (Courses, directed exercises and practical work):

- **Mechanics and materials:** Fatigue and fracture of materials, Resistance of materials, Analytical mechanics, Mechanisms of power transmission.
- **Manufacturing processes:** Mold and Press Tools Design, Metalworking by plastic deformation, Casting processes, Machining technologies (Milling, lathe, grinding), Welding processes.
- **Modeling and simulation:** Finite Element Method (FEM), Computer Aided Design (CAD), Computer Aided Manufacturing (CAM).
- **Industrial engineering:** Production management, Industrial maintenance.

RESEARCH AREAS/ INTERESTS:

Fatigue of metallic materials, Metal working (cold rolling of sheet metal, hydroforming), Welding, Casting, Numerical simulation, Smart manufacturing.

PUBLICATIONS:

• JOURNAL PUBLICATIONS

- J1.** R. Ghorbel, **A. Ktari**, N. Haddar (2022) Microstructure and mechanical property assessment of stainless steel-clad plate joint made by hybrid SMAW-GTAW multi-pass welding process. *Welding in the World*. doi.org/10.1007/s40194-022-01301-9 (*Q2; IF=1.98*)
- J2.** R. Ghorbel, **A. Ktari**, N. Haddar (2022) In the origin of the local hardening zone on the welded stainless clad steel plates. *Fusion science and technology*. doi.org/10.1080/15361055.2022.2051923 (*Q2; IF=1.23*)
- J3.** **A. Ktari**, M. El Mansori (2022) Digital twin of functional gating system in 3D printed molds for sand casting using a neural network. *Journal of Intelligent Manufacturing*, 33, pp. 897-909. (*Q1; IF=7.14*)
- J4.** **A. Ktari**, M. El Mansori (2021) Intelligent approach based on FEM simulations and soft computing techniques for filling system design optimisation in sand casting processes. *Int J Adv Manuf Technol*. 114, pp. 981–995 (*Q1; IF=3.22*)
- J5.** R. Ghorbel, **A. Ktari**, N. Haddar (2021) Experimental analysis of temperature field and angular distortion in multi-pass welding of stainless clad steel, *Int J Adv Manuf Technol*. 113, pp. 3525-3542 (*Q1; IF=3.22*)
- J6.** **A. Ktari**, A. Abdelkefi, N. Guermazi, P. Malecot, N. Boudeau (2021) Numerical investigation of plastic flow and residual stresses generated in hydroformed tubes. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 235(5), pp. 1100-1111 (*Q2; IF=2.66*)

- J7.** D. Abid, **A. Ktari**, D. Mellouli, N. Gafsi, N. Haddar (2019) Failure analysis of shot–sleeves used in brass high pressure die-casting process, *Engineering Failure Analysis*, 104, pp. 177-188. (Q1; IF=3.63)
- J8.** W. Yangui, **A. Ktari**, M. Gammoudi, N. Guerhazi, K. Elleuch (2018) Sheet metal forming in the case of hinge manufacturing process, Part 2: Numerical study, *Int J Adv Manuf Technol*, 95, pp. 367–374. (Q1; IF=3.22)
- J9.** W. Yangui, N. Guerhazi, **A. Ktari**, K. Elleuch (2018) Sheet metal forming in the case of hinge manufacturing process, Part 1: Experimental study, *Int J Adv Manuf Technol*, 94, pp. 2635–2643. (Q1; IF=3.22)
- J10.** Z. Dhib, N. Guerhazi, **A. Ktari**, M. Gasperini, N. Haddar (2017) Mechanical bonding properties and interfacial morphologies of austenitic stainless steel clad plates, *Materials Science and Engineering A*, 696, pp. 374-386. (Q1; IF=6.04)
- J11.** **A. Ktari**, N. Haddar, F. Rezai-Aria, H. F. Ayedi (2016) On the assessment of train crankshafts fatigue life based on LCF tests and 2D-FE evaluation of *J*-integral, *Engineering Failure Analysis*, 66, pp. 354-364. (Q1; IF=3.63)
- J12.** **A. Ktari**, M. Baccar, M. Shah, N. Haddar, H. F. Ayedi, F. Rezai-Aria (2014) A crack propagation criterion based on Δ CTOD measured with 2D-digital image correlation technique, *Fatigue Fract Eng Mater Struct*, 37, pp. 682-694. (Q1; IF=3.37)
- J13.** **A. Ktari**, Z. Antar, N. Haddar, K. Elleuch (2012) Modeling and computation of three-roller bending process of steel sheet, *Journal of Mechanical Science and Technology*, 26, pp. 123-128. (Q2; IF=1.81)
- J14.** **A. Ktari**, N. Haddar, H.F. Ayedi (2011) Fatigue fracture expertise of train engine crankshafts, *Engineering Failure Analysis*, 18, pp. 1085-1093. (Q1; IF=3.63)
- J15.** **A. Ktari**, N. Haddar, A. Köster, A. Marie-Louise Toure (2011) Numerical computation of thermal fatigue crack growth of cast iron, *Fatigue and Fracture of Engineering Materials and Structures*, 34, pp. 498-509. (Q1; IF=3.37)

- **CONFERENCE PAPERS**

- C1.** **A. Ktari**, M. El Mansori, Bridging FEM and Artificial Neural Network in gating system design for smart 3D sand casting, *30th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM2021)*, 07-09 June 2021, Athens, Greece (published in *Procedia Manufacturing*, 51 (2020) 795-800).
- C2.** D. Abid, **A. Ktari**, N. Haddar. FE computation of shot-sleeve thermal fatigue behaviour used in brass high-pressure die-casting process, *8th International Congress Design and Modelling of Mechanical Systems (CMSM2019)*, 18-20 March 2019, Hammamet, Tunisia.
- C3.** R. Ghorbel, **A. Ktari**, N. Haddar. Experimental analysis of temperature field and angular distortion in multi-pass welding of stainless clad steel, *Seminar of New Welding Technologies (SNTS2017)*, 3rd Session, 17-19 November 2017, Hammamet, Tunisia.
- C4.** D. Abid, **A. Ktari**, D. Mellouli, N. Haddar. Etude de l'endommagement par fatigue thermique des conteneurs utilisés dans la fonderie sous pression (in French), *7th International Congress Design and Modelling of Mechanical Systems (CMSM2017)*, Hammamet, 27-29 March 2017, Tunisia.
- C5.** O. Ammar, **A. Ktari**, L. Dieng, N. Haddar, Study of localized behavior in a NiTi based Shape Memory Alloy, *The 6th International Congress Design and Modelling of Mechanical Systems (CMSM2015)*, 23-25 March 2015, Hammamet, Tunisia.

- C6. A. Ktari**, F. Rezai-Aria, N. Haddar, M. Baccar, H. F. Ayedi, Validation d'un critère énergétique basé sur la mesure expérimentale du CTOD pour la fissuration en fatigue de l'acier forgé 4130 (in French), *The first international conference in Materials, Environment and Durability (MED2012)*, 22-24 March 2012, Hammamet, Tunisia.
- C7. A. Ktari**, N. Haddar, H.F. Ayedi, Fatigue fracture expertise of train engine crankshaft, *5th International Conference on Advances in Mechanical Engineering and Mechanics (ICAMEM2010)*, 18-20 December 2010, Hammamet, Tunisia.
- C8. A. Ktari**, Z. Antar, N. Haddar, K. Elleuch, Simulation numérique des paramètres de roulage (in French), *First International Conference on Passive and Active Mechanical Innovation (IMPACT2010)*, 22-24 March 2010, Djerba, Tunisia.

GRADUATE SUPERVISION

- Co-supervision of two PhD theses in Materials Science and Engineering under the direction of Pr. Nader HADDAR (Full Professor at ENIS, University of Sfax - Tunisia).
 - Rami Ghorbel, Microstructural and mechanical study of welded joints in clad steel A240 TP 316L/A 283 Gr C (PhD defended in 06/05/2022).
 - Dorra Abid, Thermal Fatigue damage of hot working steels used in shot-sleeve applications (PhD defended in 24/12/2020).
- Supervision of more than 30 Final Studies Project for Engineer students at ENIS (2016-2018) and ENISO (2011-2015).

AWARDS

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| 11/2017 | Tunisian Association of Welding award for the second best presentation in the "Third Seminar of New Welding Technologies (SNTS2017)", Hammamet, Tunisia. |
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SKILLS

Languages:

Arabic (mother tongue), French (Fluent), English (Professional working proficiency).

Technical skills: CAD /CAM (CatiaV5, SolidWorks, AutoCAD), Modeling and simulation (Abaqus, ProCast, Mold Flow Plastics), Machine learning and Optimization tools (Matlab), Operating systems (Windows, Unix/Linux, MacOS), Microsoft Office pack.

Professional memberships:

Member of "Association des Ingénieurs Diplômés de l'ENIS" (ENIS ALUMNI).

Hobbies: Football and gardening.