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## Abdelouahad Chala, Professor

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### Education

- Jan 1998 – Jul 2005* **University of Biskra**  
Doctorate, Physics  
Biskra, Algeria
- Oct 1991 – Sep 1994* **University of Constantine 1**  
Magister, Physics  
Constantine, Algeria
- Sep 1987 – Jun 1991* **University of Constantine 1**  
DES, Physics  
Constantine, Algeria

### PhD Thesis

Thin film deposition for hard coatings: Application to protection against wear and corrosion.  
University of Biskra, Algeria, June 2005

### Research Experience

- Apr 2013 – present* **Laboratory Head**  
University of Biskra, Department of Physics  
Biskra, Algeria  
Director of the Laboratory of Physics of Thin Film and Applications
- Dec 2009 – present* **Professor**  
University of Biskra, Department of Physics  
Biskra, Biskra, Algeria  
Professor of Physics
- Sep 2006 – Dec 2012* **Chef d'équipe**  
Université de Biskra, Laboratory of Applied Chemistry
- Dec 2002 – May 2004* **PhD Student**  
Ecole Nationale Supérieure d'Arts et Métiers, Laboratoire Bourguignon des  
Matériaux et Procédés - LaBoMaP, Cluny, France

Jan 2001 – Dec 2005 **Associated Researcher**  
University of Biskra, Laboratory of Physics of Semi-conductors et metallic materials.

Oct 1994 – present **Lecturer Researcher**  
University of Biskra, Department of Material Sciences

Sep 1991 – Sep 1994 **PhD Student**  
University of Constantine 1, Department of Physics  
Constantine, Constantine, Algeria

Magister

## Statistics

RG Score 23.75

Publications 62

Reads 4,115

Citations 212

## Skills & Activities

*Skills* Thin Film Coatings, Corrosion Protection, Wear Testing, Surface Characterization, Electrodeposition, X-ray Diffraction, Tribology, Metallurgy

*Languages* Arabic, English, French

*Scientific Memberships* Algerian Association of Physics

*Interests* Football  
Music  
travel

## Journal Publications

Hicham Taoui, Hamza Bentrach, Abdelouahad Chala, Mounir Djellab: *Bark resin of Schinus molle as an eco-friendly inhibitor for API 5L X70 pipeline steel in HCl medium*. Materials and Corrosion 10/2018  
DOI:10.1002/maco.201810477

Mounir Djellab, Hamza Bentrach, Abdelouahad Chala, Hicham Taoui: *Synergistic effect of halide ions and gum arabic for the corrosion inhibition of API5L X70 pipeline steel in H<sub>2</sub>SO<sub>4</sub>*. Materials and Corrosion 07/2018;, DOI:10.1002/maco.201810203

M. Maache, T. Devers, A. Chala: *Al-doped and pure ZnO thin films elaborated by sol-gel spin coating process for optoelectronic applications*. Semiconductors 12/2017; 51(12):1604-1610.,  
DOI:10.1134/S1063782617120132

- Samira Zermane, Abdelouahed Chala, Okba Belahssen: *Effect of heat treatment on the corrosion behavior of Al-10%wt Mg alloys*. Acta Metallurgica Slovaca 09/2017; 23(3):264., DOI:10.12776/ams.v23i3.914
- Hamza Bentrach, Abdelouahad Chala, Mounir Djellab, Youssouf Rahali, Hicham Taoui: *The influence of temperature on the corrosion inhibition of API 5L X42 pipeline steel in HCl medium by Gum Arabic*. Anti-Corrosion Methods and Materials 06/2017; 64(4)., DOI:10.1108/ACMM-11-2016-1734
- Amer Mekkaoui, Shahnez Saied, Okba Belahssen, Abdelouahed Chala: *Effect of Tio2 nanoparticles in ni matrix on mechanical and corrosion resistance properties*. Acta Metallurgica Slovaca 03/2017; 23(1):37., DOI:10.12776/ams.v23i1.846
- S Marmi, A Chala, H Marmi, C Siad: *COMPORTEMENT A LA CORROSION DES REVETEMENTS A BASE DE NICKEL ET DE CHROME SUR DES SUBSTRATS DE CUIVRE*.
- M. Maache, T. Devers, A. Chala: *Al-doped and pure ZnO thin films elaborated by sol-gel spin coating process for optoelectronic applications*. 01/2017; 51(12):1663., DOI:10.21883/FTP.2017.12.45182.8078
- M. Ghougali, O. Belahssen, A. Chala: *Effect of Annealing in Physical Properties of NiO Nanostructure Thin Film*. Journal of Nano- and Electronic Physics 01/2017; 9(3):03043-1-03043-3., DOI:10.21272/jnep.9(3).03043
- Abdenabi Abidi, Mostafa Iezid, Messaoud Ramdani, Fadhel Ismail, Abdelouahad Chala, Nouredine Gherraf: *Phenomenological modeling of orthophosphates transfer through a nanofiltration membrane*. Desalination and water treatment 01/2017; 67:51-60., DOI:10.5004/dwt.2017.20348
- Hayat Marmi, Chahinez Siad, Saida Marmi, Abdelouahad Chala: *L'INHIBITION DE CORROSION DE L'ACIER DOUX EN MILIEU Na 2 SO 4 0,01M PAR DICHROMATE DE SODIUM*.
- M. Ghougali, O. Belahssen, A. Chala: *Structural, Optical and Electrical Properties of NiO Nanostructure Thin Film*. Journal of Nano- and Electronic Physics 01/2016; 8(4(2)):04059-1-04059-4., DOI:10.21272/jnep.8(4(2)).04059
- Fatima Z. Lemmadi, Abdelouahed Chala, Okba Belahssen, Said Benramache: *Effect of heat treatments on structural, microstructural and mechanical properties of Al 2017 alloy*. The Physics of Metals and Metallography 01/2016; 117(1):83-88., DOI:10.1134/S0031918X16010099
- C. Saïed, Abdelouahed Chala, Okba Belahssen, Said Benramache: *Tribological Behavior of 42CrMo4 Steel Nitrided by Plasma*. Acta Metallurgica Slovaca 09/2015; 21(3):220-225., DOI:10.12776/ams.v21i3.563
- Fatima Z. Lemmadi, Abdelouahed Chala, Okba Belahssen, Said Benramache: *THE EFFECT OF AGEING TEMPERATURE ON MICROSTRUCTURAL AND MECHANICAL PROPERTIES OF AL-MG-SI ALLOY*. 12/2014; 20(4)., DOI:10.12776/ams.v20i4.354
- Okba Belahssen, Abdelouahed Chala, Hachemi Ben Temam, Sai Benramache: *Corrosion and wear resistance of 32CrMoV13 steel nitrided by plasma*. RSC Advances 10/2014; 4(95)., DOI:10.1039/C4RA08326A
- Abdelouahad Chala, Chahinez Saied, Hanane Ghelloudj: *Nanocomposite nitride thin films for hard coatings: Application to wear and corrosion resistance*.
- A. Chala, A. Darsouni, O. Belahssen, S. Benramache: *Electrochemical corrosion of 42CrMo4 steel nitrided with different impedance parameters*.

- Hamza Bentrach, Youssouf Rahali, Abdelouahad Chala: *Gum Arabic as an eco-friendly inhibitor for API 5L X42 pipeline steel in HCl medium*. Corrosion Science 05/2014; 82:426–431., DOI:10.1016/j.corsci.2013.12.018
- O. Belahssen, A. Chala, S. Benramache, B. Djamel, C. Foued: *Effect of gas mixture H<sub>2</sub>-N<sub>2</sub> on microstructure and microhardness of steel 32CDV13 nitrided by plasma*. DOI:10.5829/idosi.ije.2014.27.04a.13
- Fatima Z Lemmadi, Abdelouahad Chala, F Chabane, Said Benramache: *Effect of Heat Treatments on Structural, Microstructural and Mechanical Properties of Al 6000 Alloy*. 03/2014; 6(3):338-342., DOI:10.1166/ase.2014.1487
- Nadjette Belhamra, Abdelouahad Chala: *Corrosion behavior of TiN-coated cutting carbide tools*. Main Group Chemistry 01/2014; 13(1):65-71., DOI:10.3233/MGC-140123
- Okba Belahssen, Abdelouahad Chala, Said Benramache: *Corrosion behaviour of the 42CrMo4 Steel Nitrided by Plasma*. Oriental Journal of Chemistry 12/2013; 29(4):1543-1546., DOI:10.13005/ojc/290434
- S. Addala, L. Bouhdjer, A Chala, A Bouhdjar, O. Halimi, B. Boudine, M. Sebais: *Structural and optical properties of a NaCl single crystal doped with CuO nanocrystals*. Chinese Physics B 09/2013; 22(9-9), DOI:10.1088/1674-1056/22/9/098103
- L. Bouhdjer, S. Addala, A. Chala, O. Halimi, B. Boudine, M. Sebais: *Elaboration and characterization of a KCl single crystal doped with nanocrystals of a Sb<sub>2</sub>O<sub>3</sub> semiconductor*. Journal of Semiconductors 04/2013; 34(4):043001., DOI:10.1088/1674-4926/34/4/043001
- Abdenabi Abidi, Abdelouahad Chala, Murielle Rabiller-Baudry: *MECANISME DE TRANSFERT DES IONS ORTHOPHOSPHATES A TRAVERS UNE MEMBRANE DE NANOFILTRATION EN MODE D'ÉCOULEMENT TANGENTIEL DISCONTINUE*.
- FZ Lemmadi, A Chala, S Ferhati, F Chabane, S Benramache: *Structural and Mechanical Behavior during Quenching of 40CrMoV5 Steel*.
- O.Belahssen, A.Chala, S. Benramache, D. Bensahal, F. Chabane: *MICROSTRUCTURE AND CORROSION BEHAVIOR OF STEEL NITRIDED BY PLASMA*.
- Okba Belahssen, Abdellouahad Chala, Said Benramache: *Comparative Study of Impedance Parameters for 42CrMo4 Steel Nitrided Exposed at Electrochemical Corrosion*.
- Okba Belahssen, Abdellouahad Chala: *Microstructure of Low Alloyed Steel 32CDV13 Nitrided by Plasma*.
- Hachemi Ben Temam, Abdelouahad Chala, Saâd Rahmane: *Microhardness and corrosion behavior of Ni-SiC electrodeposited coatings in presence of organic additives*. Surface and Coatings Technology 07/2011; 205., DOI:10.1016/j.surfcoat.2011.04.086
- O. Belahssen, A. Darsouni, A. Chala: *Characterization of physicochemical proprieties of 32crmov13 low alloy steel nitided by plasma*. Physical and Chemical News 01/2009; 47:84-90.
- Okba Belahsse, Abdelouahad Chala: *Comportement en corrosion électrochimique de l'acier faiblement allié 32 CrM oV13 nitruvé par plasma*. Annales de Chimie Science des Matériaux 10/2008; 33(5):423-431., DOI:10.3166/acsm.33.423-431

- B. Abdallah, A. Chala, P.-Y. Jouan, M.P. Besland, M.A. Djouadi: *Deposition of AlN films by reactive sputtering: Effect of radiofrequency substrate bias*. Thin Solid Films 06/2007; 515(18):7105-7108., DOI:10.1016/j.tsf.2007.03.006
- Hachemi Ben Temam, Larbi Zeroual, Abdelouahad Chala, Saad Rahmane, Corinne Nouveau: *Microhardness and Corrosion Behavior of Ni-SiC Electrodeposited Coatings*. Plasma Processes and Polymers 04/2007; 4(S1)., DOI:10.1002/ppap.200731417
- Chahinez Saied, Abdelouahad Chala, Corinne Nouveau, Mohamed Abdou Djouadi, Lounis Chekour: *Determination of the Optimum Conditions for Ion Nitriding of 32CDV13 Low Alloy Steel*. Plasma Processes and Polymers 04/2007; 4(S1)., DOI:10.1002/ppap.200731812
- Saâd Rahmane, Mohamed Salah Aïda, Abdelouahad Chala, Hachemi Ben Temam, Abdou Djouadi: *Elaboration of Transparent Undoped ZnO and Al- Doped ZnO Thin Films by Spray Pyrolysis and their Properties*. Plasma Processes and Polymers 04/2007; 4(S1):S356 - S358., DOI:10.1002/ppap.200730908
- A. Chala, C. Nouveau, M. A. Djouadi, Philippe Steyer, J.P. Millet, C. Saied, M.S. Aïda, M. Lambertin: *Effect of duplex treatments by plasma nitriding and triode sputtering on corrosion behaviour of 32CDV13 low alloy steel*. Surface and Coatings Technology 06/2006; 200(22):6568-6571., DOI:10.1016/j.surfcoat.2005.11.036
- A. Chala, L. Chekour, C. Nouveau, C. Saied, M. S. Aida, M. A. Djouadi: *Study of the duplex treatment on 32CrMoV13 low alloy steel: Application in wood machining*. Surface and Coatings Technology 10/2005; 200(1):512-516., DOI:10.1016/j.surfcoat.2005.02.095
- L. Chekour, C. Nouveau, A. Chala, C. Labidi, N. Rouag, M.A. Djouadi: *Growth mechanism for chromium nitride films deposited by magnetron and triode sputtering methods*. Surface and Coatings Technology 10/2005; 200(1-4):241-244., DOI:10.1016/j.surfcoat.2005.02.062
- Z. Boumerzoug, L. Boudhib, A. Chala: *Influence of plastic deformation on occurrence of discontinuous precipitation*. Journal of Materials Science 06/2005; 40(12):3199-3203., DOI:10.1007/s10853-005-2684-2
- L. Chekour, C. Nouveau, A. Chala, MA Djouadi: *Duplex treatment of 32CrMoV13 steel by ionic nitriding and triodesputtering: Application to wood machining*. Wear 08/2003; 255(7):1438-1443., DOI:10.1016/S0043-1648(03)00229-1

## Conference Proceedings

- Hayat Marmi, Chahinez Siad, Abdelouahad Chala, Marmi Saida: *Sodium benzoate as a corrosion inhibitor for mild steel in 0,6M NaCl + 0,01M Na2SO4 solution*. First Arab Conference on Mechanical Engineering, ARCME'17, Biskra, Algeria; 12/2017
- Chahinez Siad, Hayat Marmi, Abdelouahad Chala, Marmi Saida: *Electrodeposition of Ni-Cr-ZrO2 composite coating on copper surface*. first arab conference on mechanical engineering ARCME'17, Biskra, Algeria; 12/2017
- Abdelouahad Chala, Hicham Taoui, Hamza Bentrach, Mounir Djellab: *Etude comparative de comportement à la corrosion de métal de base et joint soudé de l'acier de pipeline API 5L X70, Congr  Alg rien de M canique, Constantine 2017*. Congr s Alg rien de M canique, Constantine, Algeria; 11/2017

O. Belahssen, A. Chala, M.H. Belahssen, S. Benramache, D. Bensahal, F. Chabane: *Microstructure and microhardness of low alloyed steel 32CDV13 nitrided by plasma*. the 22nd International Conference on Metallurgy and Materials, Metal 2013,, Brno, Czech Republic, EU; 05/2013

Abdelouahad Chala, Hachemi Ben Temam, Rahmane Saad: *PSE 2010 Special Issue, Proceedings of the 12th International Conference on Plasma Surface Engineering*. 12th International Conference on Plasma Surface Engineering, PSE 2010, Garmisch-Partenkirchen; 09/2010