دکتر جعفر خلیل علافی

استاد

دانشکده: مهندسی مواد

گروه: متالورژی

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March 2015- present Professor, Faculty of Materials Engineering, Sahand University of Technology,
Tabriz, Iran.
July 2014-2018 Head of Faculty of Materials Engineering, Sahand University of Technology,
Tabriz, Iran.
March 2016-December2020 Technical Consulter in Pump and Turbine Company (PETCO), Tabriz, Iran.
June 2005 – June 2007 and Feb. 2011 - 2018 Dean of Research Center for Advanced Materials and Mineral Processing, Sahand University of Technology, Tabriz, Iran.
Sep. 2007- March 2015 Associate Professor, Faculty of Materials Engineering, Sahand University of
Technology, Tabriz, Iran.
Sep. 2004 – Sep. 2007 Assistant Professor, Faculty of Materials Engineering, Sahand University of Technology, Tabriz, Iran.

Courses taught for Bachelor Students:

1) Materials Selection 2) Physical Properties I & II 3) Nonferrous Alloys 4) Thermodynamics of Materials 5) Production Processing, 6) Heat Treatments 7) Materials Science 8) Advanced Materials
9) Crystallography 10) Casting of Steels and Cast Irons

(i) Advanced Thermodynamic (ii) Shape Memory Materials (iii) Casting Design
for M.Sc. Students

Shape Memory Materials and Casting Design for Ph.D. students

Jan. 2003 – Aug. 2004 Postdoctoral, Ruhr-University Bochum, Germany (under supervision of
Professor Wolfgang Schmahl)
Jan. 1999 – Dec. 2002 Ph.D.: Institute for Materials Science, Ruhr-University Bochum, Germany
Thesis Subject: Microstructural Investigations on the Influence of ThermoMechanical Treatments on Martensitic Phase Transformations in a Ni-rich NiTi
Shape Memory Alloys (under supervision of Professor Gunther Eggeler)
Oct. 1992 – Nov. 1998 Instructor at Sahand University of Technology, Tabriz, Iran.
Dec. 1995 – Jul. 1998 Technical Consulter in combine manufacturing co. "Azarbaijan Industry
Promotion Co." Tabriz, Iran.

Jun. 1997 – Jul. 1998 Technical Consulter in Educational Group of Iran Tractor Manufacturing
Organization, Tractor Manufac. Co. of Tabriz, Iran.

Apr. 1989 – Jun. 1992 M. Sc.: Materials Engineering, Iran University of Science and Technology, Tehran, Iran.
Thesis Subject: The Casting of Ductile Iron in Rigid Moulds and Permanent moulds Without Using Riser

Mar. 1984 – Feb. 1988 B. Sc.: Metallurgical Engineering, Isfahan University of Technology, Isfahan,
Iran.
Award: Thyssen-Krupp innovation price 2002 in Germany

Language Skills: German, English, Persian, Azari

Book: Metallic Biomaterials and Biocoatings, By: Mahdiyeh Soltanalipour and
Jafar Khalil-Allafi, 2020 Froozesh publications-Tabriz
Translation: Two Books translated from English to Persian language (Farsi)
(1) Thermodynamics of Materials, by: Prof. Daviv, V. Ragon
(2) Shape Memory Materials, Edited by: Prof. Otsuka and Prof. Wayman

Research Interests: Shape Memory Alloys, Biomaterials, Bio-Coatings, Heat treatments and Phase
Transformation, Materials Selection, Production and Quality Control of Composites and Alloys, Casting Technology, Characterization of Materials

Others Activities: Member of the specialized working group for planning and development of
materials and metallurgy in the Ministry of Science (2018- 2024)
Member of technical and engineering working group in INSF (2015-2020)
Member of the editorial board of Journal of Advanced Materials in Isfahan
University of Technology

Sport Activities: Swimming, Bicycle, Soccer

Journal Publications:
1) J. K. Allafi, A. Dlouhy, K. Neuking, G. Eggeler, “Influence of precipitation and dislocation substructure on phase transformation temperatures in a Ni-rich NiTi shape memory alloy”, J. de Physique IV, 11 (2001), 529.

2) J. Khalil Allafi, X. Ren, G. Eggeler, “The Mechanism of Multistage Martensitic Transfomations in aged Nirich NiTi Shape Memory Alloys” Acta Materialia 50, (2002), 793.
3) H. Sitepu, W.W. Schmahl, J. Khalil Allafi, G. Eggeler, T. Reinecke, H. G. Brokmeier, M. Tovar , D. M. T□bbens, “Texture and Quantitative Phase Analysis in Aged Ni-rich NiTi using X-ray and Neutron Diffraction” Mater. Res. Forum, Vols 394-395, (2002), 237.
4) H. Sitepu, W.W. Schmahl, J. Khalil Allafi, G. Eggeler, A. Dlouhy, D. M. Toebbens and M. Tovar, “Neutron Diffraction Phase Analysis During Thermal Cycling of A Ni-Rich NiTi Shape Memory Alloy Using The Rietveld Method” Scripta Materialia 46, (2002), 543.
5) J. Khalil-Allafi, A. Dlouhy, G. Eggeler, “Ni4Ti3-Precipitation during Aging of Ni-rich NiTi Shape Memory Alloys And its Influence on Martensitic Phase Transformations” Acta Materialia, 50, (2002) 4255.
6) G. Eggeler, J. Khalil-Allafi, K. Neuking, A. Dlouh□, “Creep of binary Ni-rich NiTi shape memory alloys and the influence of pre-creep on martensitic transformations” Zeitschrift f□r Metallkunde, 93 (2002) 7, 653.
7) A. Dlouhy, J. Khalil-Allafi, G. Eggeler, “Multiple-Step Martensitic Transformations in Ni-rich NiTi Alloys -an In-Situ TEM Investigation”, Phil. Mag., (2003), Vol. 83, 339.
8) J. Khalil Allafi, A. Dlouhy, G. Eggeler “On The Relation Between Ni4Ti3-Precipitation in Ni-Rich NiTi Shape Memory Alloys (During Aging And Creep) And Martensitic Transformation”, J. de Physique IV 112, (2003), 681.
9) G. Eggeler, J. Khalil Allafi, A. Dlouhy, X. Ren, “On The Role of Chemical And Microstructural Heterogeneities in Multistage Martensitic Transformations”, J. de Physique IV 112, (2003), 673.
10) H. Sitepu, W. W. Schmahl, T. Reinecke, J. Khalil Allafi , G. Eggeler, “Phase Fractions of B2, B19□, R-Phase And Ni4Ti3 in NiTi Aloys During Two-Step Phase Transformations”, J. de Physique IV 112, (2003), 677.
11) H. Sitepu, W. W. Schmahl, G. Eggeler, J. Khalil Allafi , D. M. T□bbens, “A Neutron Diffraction Study of The Martensitic Transformations in Aged Ni-Rich NiTi Alloys”, J. de Physique IV 112, (2003), 643.
12) J. Khalil-Allafi, G. Eggeler, A. Dlouhy, W.W. Schmahl, Ch. Somsen, “On the influence of heterogeneous precipitation on martensitic

transformations in a Ni-rich NiTi shape memory alloy", Materials Science and Engineering A 378 (2004) 148-151.
13) J. Khalil-Allafi, W.W. Schmahl, C. Deroche, H. Sitepu, D. M. Toebbens, G. Eggeler, "The influence of temperature on lattice parameters of coexisting phases in NiTi shape memory alloys – Neutron diffraction study", Materials Science and Engineering A 378 (2004) 161-164.
14) W.W. Schmahl, J. Khalil-Allafi, B. Hasse, M. Wagner, A. Heckmann, Ch. Somsen, "Investigation of the phase evolution in a superelastic NiTi shape memory alloy (50.7 at.-%Ni) under extensional load with synchrotron radiation", Materials Science and Engineering A 378 (2004) 81-85.
15) Ch. Somsen, J. Khalil-Allafi, E.P. George, "Influence of iridium on the martensitic transformation in Ni-Ti shape memory alloys", Materials Science and Engineering A 378 (2004) 170-174.
16) Delgadillo-Holtfort, M. Kaack, T. Yohannes, J. Pelzl, J. Khalil-Allafi, "Ultrasonic investigation of multistage martensitic transformations in aged Ni-rich NiTi shape memory alloys", Materials Science and Engineering A, (2004) 76-80.
17) J. Khalil-Allafi, B. Hasse, M. Kloenne, M. Wagner, Th. Pirling, W. Predki, W.W. Schmahl, "In-situ diffraction investigation of superelastic NiTi shape memory alloys under mechanical stress with neutrons and with synchrotron radiation", Materials Science and Engineering Technology, (2004), 35, No. 5, 280.
18) A. Dlouhy, J. Khalil-Allafi, G. Eggeler, "On the determination of the volume fraction of Ni4Ti3 precipitates in binary Ni-rich NiTi shape memory alloys", Zeitschrift f□r Metallkunde, (2004) 6, 518.
19) J. Khalil-Allafi, W.W. Schmahl, T. Reinecke, "Landau Free Energy Model for the B2 □ R-Phase Transition in a NiTi Shape Memory Alloy", Smart Materials and Structures 14, (2005) 192 -196.
20) G. Eggeler, J. Khalil-Allafi, S. Gollerthan, Ch. Somsen, W. Schmahl, D. Sheptyakov,"On the Effect of Aging on Martensitic Transformations in Ni-rich NiTi Shape Memory Alloys", Smart Materials and Structures 14, (2005) 186-191.
21) J. Khalil-Allafi, G. Eggeler, W. Schmahl, D. Sheptyakov, Quantitative Phase Analysis in microstructures which Form Multiple Step Martensitic Transformations in Ni-rich NiTi Shape Memory

Alloys, Materials Science and Engineering A, 438-440 (2006) 593-596.
22) J. Khalil-Allafi, W. W. Schmahl, D.M. Toebbens, Space Group and Crystal Structure of R-Phase in Binary NiTi Shape Memory Alloys, Acta Materialia, Volume 54, Issue 12, July 2006, Pages 3171-3175.
23) M. Hasan et al., J. Khalil-Allafi, “Hard X-ray studies of stress-induced phase transformations in superelastic NiTi shape memory alloys under uniaxial loading conditions” Materials Science and Enginering A, 481-482 (2008) 414-419.
24) M. Hadi, A. R. Kamali, J. Khalil-Allafi, A. R. Ebrahimi, M. Hadavi, "Elimination of Inclusions and Evaporation Control during Melting of Ti-48Al-2Cr-2Nb-1B Intermetallic Alloy" Russian Journal of NonFerrous Metals, 2009, Vol. 50, No. 1, pp. 24–29. © Allerton Press, Inc., 2009.
25) M. S. Shakeri, J. Khalil-Allafi, V. Abbasi-Chianeh, Arash Ghabchi, The Influence of Ni4Ti3 precipitates orientation on two-way shape memory effect in a Ni-rich NiTi alloy, Journal of Alloys and Compounds 485 (2009) 320–323
26) J. Khalil-Allafi, Behnam Amin-Ahmadi, The effect of chemical composition on enthalpy and entropy changes of martensitic transformations in binary NiTi shape memory alloys, Journal of Alloys and Compounds 487 (2009) 363–366
27) M. Ramazani, J. Khalil-Allafi, R. Mozaffarinia, Grindability evaluation and fatigue and wear behavior of conventional and nanostructured Al2O3-13% TiO2 air plasma sprayed coatings, Journal of Thermal spray Technology, Volume 19(3) March (2010) 611
28) A. Ghabchi, J. Khalil-Allafi, X.W. Liu, O. S□derberg, E. Turunen and S-P Hannula, Effect of aging and solution annealing on transformation and deformation mechanism of super -elastic Ni50.9%-Ti alloy in nanoscale, Astronomy & Astrophysics, DOI:10.1051/esomat/200902009
29) A.R. Kamali, M. Hadi, J. Khalil-Allafi, and A.R. Ebrahimi, A Process for Production of a Niobium-containing TiAl Based Alloy, The Canadian Metallurgical Quarterly, Volume 49, Number 2, April (2010) 171-178, Published by the Canadian Institute of Mining, Metallurgy and Petroleum
30) J. Khalil-Allafi, Behnam Amin-Ahmadi, Multiple-step martensitic transformations in the Ni51Ti49 single crystal, Journal of Materials Science, (2010) 45:6440–6445

31) J. Khalil-Allafi, Behnam Amin-Ahmadi, Mehrnuosh Zare, Biocompatibility and Corrosion behavior of the shape memory NiTi alloy in the physiological environments simulated with body fluids for medical applications, Journal of Materials Science & Engineering C, 30,(2010) 1112–1117
32) V. Abbasi-Chianeh, J. Khalil-Allafi, Influence of aging atmosphere on the superelastic behavior of Ni50.9Ti shape memory thin wires, Journal of Materials Science & Engineering A, 527 (2010) 6963 –6967
33) J. Khalil-Allafi, Behnam Amin-Ahmadi, The effect of mold hardness on the microstructure and the contraction porosity in ductile cast iron, Journal of Iron and Steel Research, International, Volume 18, Issue 4, April (2011) Pages 44-47, 67
34) J. Khalil-Allafi, Behnam Amin-Ahmadi, Influence of mold preheat and silicon content on the microstructure and casting properties of ductile iron in a permanent mold, Journal of Iron and Steel Research, International, Volume 18, Issue 3, March (2011) Pages 34-39
35) V. Abbasi-Chianeh, J. Khalil-Allafi, Influence of applying external stress during aging on martensitic transformation and the superelastic behavior of a Ni-rich NiTi alloy , Materials Science and Engineering: A, Volume 528, Issue 15, 15 June (2011) Pages 5060-5065
36) Kamel Kazemi-Choobi, Jafar Khalil-Allafi, Vahid Abbasi-Chianeh, Investigation of the Recovery and Recrystallization Processes of Ni50.9Ti49.1 Shape Memory Wires Using In-Situ Electrical Resistance Measurement, Materials Science and Engineering: A, Volume 551 (2012) 122–127
37) H. Maleki-Ghaleh, V. Khalili, J. Khalil-Allafi, M. Javidi, Hydroxyapatite coating on NiTi shape memory alloy by electrophoretic deposition process, Surface and Coatings Technology 208 (2012), 57-63
38) Fatemeh Khaleghi, Jafar Khalil-Allafi, Vahid Abbasi-Chianeh, Soheil Noori, Effect of short-time annealing treatment on the superelastic behavior of cold drawn Ni -rich NiTi shape memory wires, Journal of Alloys and Compounds, Volume 554, 25 March (2013) Pages 32-38
39) V. Abbasi-Chianeh, J. Khalil-Allafi, The effect of post deformation aging on superelastic properties of NiTi thin wires attaining micro and nano-substructure, Journal of Alloys and Compounds, Volume 563 (2013), Pages 44-50
40) V. Khalili, J. Khalil-Allafi, H. Maleki-Ghaleh, Titanium Oxide (TiO2)

Coatings on NiTi Shape Memory Substrate Using Electrophoretic Deposition Process, International Journal of Engineering, Vol. 26, No. 7, July (2013) 707-712
41) Kamel Kazemi-Choobi, Jafar Khalil-Allafi, Amin Elhami, Parviz Asadi, Influence of Aging Treatment on InSitu Electrical Resistance Variation During Aging of Nickel-Rich NiTi Shape Memory Wires, Metallurgical and Materials Transactions A, October (2013) Volume 44, Issue 10, pp 4429-4433
42) Kamel Kazemi-Choobi, Jafar Khalil-Allafi, Vahid Abbasi-Chianeh, Influence of recrystallization and subsequent aging treatment on superelastic behavior and martensitic transformation of Ni50.9Ti wires, Journal of Alloys and Compounds, Volume 582, 5 January (2014) Pages 348-354
43) V. Khalili, J. Khalil-Allafi, H. Maleki-Ghaleh, Characterization of HA-Si Composite Coatings on NiTi for Biomedical Applications, Journal of Surface Engineering, (2014) pp212-217
44) H. Maleki-Ghaleh, J. Khalil-Allafi, M. Sadeghpour-Motlagh, M. S. Shakeri, S. Masoudfar, A. Farrokhi, Y.
Beygi Khosrowshahi, A. Nadernezhad, M. H. Siadati, M. Javidi, M. Shakiba and E. Aghaie, "Effect of surface
modification by nitrogen ion implantation on the electrochemical and cellular behaviors of super-elastic NiTi
shape memory alloy" J Mater Sci: Mater Med (2014) 25:2605–2617.
45) H. Maleki-Ghaleh, J. Khalili-Allafi, V. Khalili, M. S. Shakeri, M. Javidi, Effect of hydroxyapatite coating
fabricated by electrophoretic deposition method on corrosion behavior and nickel release of NiTi shape
memory alloy, Materials and corrosion, Volume 64 (2014), No.9999
46) H. Maleki-Ghaleh, J. Khalil-Allafi, E. Aghaie and M. H. Siadati, Effect of TiO2–Ti and TiO2–TiN composite
coatings on corrosion behavior of NiTi alloy, Surface Interface Analysis, (2015) pp99-104
47) Mohammad Hooshmand , Behzad Rafezy, and Jafar Khalil-Allafi, Seismic Retrofit in Building Structures Using
Shape Memory Alloys, KSCE Journal of Civil Engineering, Volume 19(4), (2015) pp935-942
48) S. Noori, J. Khalil-Allafi, "Effect of anodic oxidation on the corrosion

behavior of Nickel-Titanium shape
memory alloys in simulated body fluids (SBF)", Iranian Journal of Materials Engineering, Vol. 12, Number 2,
June (2015) pp 1-10
49) Soroush Ghafari-Gousheh, Syamak Hossein Nedjad, Jafar Khalil-Allafi, " Tensile properties and interfacial
bonding of multi-layered, high-purity titanium strips fabricated by ARB process" Journal of the Mechanical
Behavior of Biomedical Materials, Volume 51, November (2015), Pages 147-153
50) Esmaeil Karimi, , J. Khalil-Allafi, V. Khalili, " Electrophoretic deposition of double layer HA/Al composite
coating on NiTi", Materials Science and Engineering C 58, (2016), pp 882-890
51) Vida Khalili, Jafar Khalil-Allafi, Wei Xia, Alireza B. Parsa, Jan Frenzel, Christoph Somsen, Gunther Eggeler,
"Preparing hydroxyapatite-silicon composite suspensions with homogeneous distribution of multi -walled
carbon nano-tubes for electrophoretic coating of NiTi bone implant and their effect on the surface morphology"
Applied Surface Science, Volume 366, 15 March (2016) Pages 158-165
52) M.R. Etminanfar, J. Khalil-Allafi, A. Montaseri, R. Vatankhah-Barenji, "Endothelialization and the bioactivity
of Ca-P coatings of different Ca/P stoichiometry electrodeposited on the Nitinol superelastic alloy" Materials
Science and Engineering C, Volume 62, 1 May (2016) Pages 28-35
53) Vida Khalili, Jafar Khalil-Allafi, Christina Sengstock, Yahya Motemani, Alexander Paulsen, Jan Frenzel,
Gunther Eggeler, Manfred K□ller, "Characterization of mechanical properties of hydroxyapatite–silicon–multi
walled carbon nano tubes composite coatings synthesized by EPD on NiTi alloys for biomedical application"
Journal of the Mechanical Behavior of Biomedical Materials, Volume 59, June (2016) Pages 337-352
54) M.R. Etminanfar, J. Khalil-Allafi, A.B. Parsa, "On the electrocrystallization of pure hydroxyapatite nanowalls
on Nitinol alloy using a bipolar pulsed current" Journal of Alloys and

Compounds, Volume 678, 5 September
(2016) Pages 549-555
6
55) Vida Khalili, Jafar Khalil-Allafi, Hossein Maleki-Ghaleh, Alexander Paulsen, Jan Frenzel, Gunther Eggeler,
"The influence of Si as reactive bonding agent in the electrophoretic coatings of HA–Si–MWCNTs on NiTi
alloys" Journal of Materials Engineering and Performance, February (2016) Volume 25, Issue 2, pp 390-400
56) M. R. Etminanfar, J. Khalil-Allafi, " On the Electrodeposition of Ca-P Coatings on Nitionol Alloy: A
Comparison between Different Surface Modification Methods " Journal of Materials Engineering and
Performance, February (2016) Volume 25, Issue 2, pp 466-473
57) V. Khalili, J. Khalil-Allafi, J. Frenzel, G. Eggeler, "Bioactivity and electrochemical behavior of
hydroxyapatite-silicon-multi walled carbon nano-tubes composite coatings synthesized by EPD on NiTi alloys
in simulated body fluid" Materials Science and Engineering C 71 (2017) 473–482
58) M. Soltanalipour, J. Khalil-Allafi, E. Ghareshabani & V. Khalili, " Electrochemical behaviour of NiTi alloy
coated with TiN using DPF" Surface Engineering Volume 33, 2017 - Issue 6 Pages 474-481
59) Farzad Nasirpouri, Iman Youse, Elnaz Moslehifard, Jafar Khalil-Allafi, "Tuning surface morphology and
crystallinity of anodic TiO2 nanotubes and their response to biomimetic bone growth for implant applications"
Surface and Coatings Technology Volume 315, 15 April 2017, Pages 163-171
60) B. Katanchi, N. Choupani, J. Khalil-Allafi, M. Baghani, " Photostress analysis of stress-induced martensite
phase transformation in superelastic NiTi" Materials Science & Engineering A, Volume 688, 14 March 2017,
Pages 202-209
61) F. Marashi-Najafi, J. Khalil-Allafi, M.R.Etminanfar, "Biocompatibility of hydroxyapatite coatings deposited

by pulse electrodeposition technique on the Nitinol superelastic alloy" Materials Science and Engineering C
76 (2017) 278-286
62) Leila Fathyunes, Jafar Khalil-Allafi, "Characterization and corrosion behavior of graphene oxidehydroxyapatite composite coating applied by ultrasound-assisted pulse electrodeposition" Ceramics
International, Volume 43, Issue 16, November 2017, Pages 13885 -13894.
63) B. Katanchi, N. Choupani, J. Khalil-Allafi, R. Tavangar and M. Baghani, "Mixed-mode fracture of a
superelastic NiTi alloy: Experimental and numerical investigations" Engineering Fracture Mechanics,
Volume 190, 1 March 2018, Pages 273-287.
64) A. Radi, J. Khalil-Allafi, M.R. Etminanfar, S. Pourbabak. D. Schryvers and B. Amin-Ahmadi, "Influence of
stress aging process on variants of nano-Ni4Ti3 precipitates and martensitic transformation temperatures
in NiTi shape memory alloy" Materials & Design, Volume 142, 15 March 2018, Pages 93 -100.
65) Leila Fathyunes, Jafar Khalil-Allafi, "Effect of employing ultrasonic waves during pulse electrochemical
deposition on the characteristics and biocompatibility of calcium phosphate coatings" Ultrasonics
Sonochemistry, Volume 42, April 2018, Pages 293-302.
66) Leila Fathyunes, Jafar Khalil-Allafi, "The effect of graphene oxide on surface features, biological performance
and bio-stability of calcium phosphate coating applied by pulse electrochemical deposition" Applied Surface
Science, Volume 437, 15 April 2018, Pages 122-135.
67) Leila Fathyunes, Jafar Khalil-Allafi, Seyed Omid Reza Sheykholeslami and Maryam Moosavifar,
"Biocompatibility assessment of graphene oxide-hydroxyapatite coating applied on TiO2 nanotubes
by ultrasound-assisted pulse electrodeposition" Materials Science and Engineering: C, Volume 87, 1 June
2018, Pages 10-21.
68) M.R. Etminanfar, J. Khalil-Allafi, and S.O.R. Sheykholeslami, "The

Effect of Hydroxyapatite Coatings on the
Passivation Behavior of Oxidized and Unoxidized Superelastic Nitinol Alloys" Journal of Materials
Engineering and Performance, Volume 27(2) February 2018, Pages 501-509.
69) Seyed Omid Reza Sheykholeslami, Jafar Khalil-Allafi, and Leila Fathyunes, "Preparation, Characterization,
and Corrosion Behavior of Calcium Phosphate Coating Electrodeposited on the Modified Nanoporous Surface
of NiTi Alloy for Biomedical Applications" Metallurgical and Materials Transaction A, 30 July 2018, 1-10
7
70) Ayuob Mirzaei-Solhi , Jafar Khalil-Allafi , Mohammad Yusefi , Mojtaba Yazdani and Ahad Mohammadzadeh
"Fabrication of aluminum foams by using CaCO3 foaming agent"
Materials Research Express, Volume 5, 1-11, 2018
71) Leila Fathyunes, Jafar Khalil-Allafi, Maryam Moosavifar, " Development of graphene oxide/calcium
phosphate coating by pulse electrodeposition on anodized titanium: Biocorrosion and mechanical behavior"
Journal of the Mechanical Behavior of Biomedical Materials, Volume 90, February 2019, Pages 575 -586
72) Hossein Maleki-Ghaleh, Jafar Khalil-Allafi, " Characterization, mechanical and in vitro biological behavior
of hydroxyapatite-titanium-carbon nanotube composite coatings deposited on NiTi alloy by electrophoretic
deposition" Surface and Coatings Technology, Volume 363, 15 April 2019, Pages 179-190
73) Nazila Horandghadim, Jafar Khalil-Allafi, " Characterization of hydroxyapatite-tantalum pentoxide
nanocomposite coating applied by electrophoretic deposition on Nitinol superelastic alloy" Ceramics
International, Volume 45, Issue 8, 1 June 2019, Pages 10448-10460
74) Nazila Horandghadim, Jafar Khalil-Allafi, Erkan Ka□ar, Mustafa Urgen, " Biomechanical compatibility and
electrochemical stability of HA/Ta2O5 nanocomposite coating produced by electrophoretic deposition on

superelastic NiTi alloy" Journal of Alloys and Compounds, Volume 799, 30 August 2019, Pages 193 -204
75) Nazila Horandghadim, Jafar Khalil-Allafi, Mustafa Urgen, " Effect of Ta2O5 content on the osseointegration
and cytotoxicity behaviors in hydroxyapatite-Ta2O5 coatings applied by EPD on superelastic NiTi alloys"
Materials Science and Engineering: C, Volume 102, September 2019, Pages 683-695
76) Hossein Maleki-Ghaleh, Jafar Khalil-Allafi, "Effect of hydroxyapatite-titanium-MWCNTs composite coating
fabricated by electrophoretic deposition on corrosion and cellular behavior of NiTi alloy" Materials and
Corrosion, Materials and Corrosion. 2019;70:2128–2138
77) Shirin Khanmohammadi, Mehdi Ojaghi Ilkhchi, Jafar Khalil-Allafi, "Electrophoretic deposition and
characterization of bioglass-whisker hydroxyapatite nanocomposite coatings on titanium substrate" Surface
and Coatings Technology, Volume 378, 25 November 2019, Article 124949
78) Hojjat Naji, Jafar Khalil-Allafi, Vida Khalili, "Microstructural characterization and quantitative phase analysis
of Ni-rich NiTi after stress assisted aging for long times using the Rietveld method " Materials Chemistry and
Physics, Volume 241, 1 February 2020, Article 122317
79) Nazila Horandghadima , Jafar Khalil-Allafia, Mustafa Urgen, "Influence of tantalum pentoxide secondary
phase on surface features and mechanical properties of hydroxyapatite coating on NiTi alloy produced by
electrophoretic deposition" Surface and Coating Technology, Volume 38625, March 2020, Article 125458
80) MS Safavi, MA Surmeneva, RA Surmenev, J Khalil-Allafi, RF-magnetron sputter deposited hydroxyapatitebased composite & multilayer coatings: A systematic review from mechanical, corrosion, and biological points
of view, Ceramics International 2020
81) SOR Sheykholeslami, M Etminanfar, J Khalil-Allafi, Toward a facile synthesis of spherical sub-micron

mesoporous silica: Effect of surfactant concentration, Journal of Ultrafine Grained and Nanostructured
Materials 53 (1), (2020) 31-38
82) S Asadi, T Saeid, A Valanezhad, J Khalil Allafi, Dissimilar laser welding of NiTi shape memory alloy to
austenitic stainless steel archwires, Journal of Welding Science and Technology of Iran 5 (2), (2020) 141-152
83) Maleki-Ghaleh, H., Khalil-Allafi, J., Keikhosravani, P., Etminanfar, M.R., Behnamian, Y., Effect of Nanozirconia on Microstructure and Biological Behavior of Hydroxyapatite-Based Bone Scaffolds, Journal of Materials Engineering and Performance (2020) 29 (7), pp. 4412-4420
84) Asadi, S., Saeid, T., Valanezhad, A., Watanabe, I., Khalil-Allafi, J., Effects of Ni powder addition on
microstructure and mechanical properties of NiTi to AISI 304 stainless steel archwire dissimilar laser welds,
Journal of Manufacturing Processes (2020) 55, pp. 13-21
85) Maleki-Ghaleh, H., Khalil-Allafi, J., Horandghadim, N., Keikhosravani, P., Hosseini, M.G., Structural
characterization, mechanical, and electrochemical studies of hydroxyapatite-titanium composite coating
fabricated using electrophoretic deposition and reaction bonding process , Journal of Biomedical Materials
Research Part B: Applied Biomaterials (2020) 108 (5), pp. 2119-2130
8
86) Chitsaz-Khoyi, L., Khalil-Allafi, J., Motallebzadeh, A., Etminanfar, M., The effect of hydroxyapatite
nanoparticles on electrochemical and mechanical performance of TiC/N coating fabricated by plasma
electrolytic saturation method, Surface and Coatings Technology (2020) 394, art. no. 125817
87) Nematzadeh, L., Horandghadim, N., Khalili, V., Khalil-Allafi, J., In Vitro Biological Characterization of
Natural Hydroxyapatite/Single-Walled Carbon Nanotube Composite Coatings Synthesized by Electrophoretic
Deposition on NiTi Shape Memory Alloy, Journal of Materials Engineering and Performance (2020) 29 (9),
pp. 6170-6180

88) Badr, M., Mohammadzadeh, A., Khalil-Allafi, J., Khoshghadam-Pireyousefan, M., Mostafaei, A., In-situ
formation of TiN-TiO2 composite layer on NiTi shape memory alloy via fluidized bed reactor, Ceramics
International (2020) 46 (13), pp. 21097-21106
89) Asadi, S., Saeid, T., Valanezhad, A., Watanabe, I., Khalil-Allafi, J., The effect of annealing temperature on
microstructure and mechanical properties of dissimilar laser welded superelastic NiTi to austenitic stainless
steels orthodontic archwires, Journal of the Mechanical Behavior of Biomedical Materials (2020) 109, art. no.
103818
90) Asghari, R., Safavi, M.S., Khalil-Allafi, J., A facile and cost-effective practical approach to develop clinical
applications of NiTi: Fenton oxidation process, Transactions of the IMF (2020) 98 (5), pp. 250-257
91) Mohammad Salahi Tohidi, P., Safavi, M.S., Etminanfar, M., Khalil-Allafi, J., Pulsed electrodeposition of
compact, corrosion resistant, and bioactive HAp coatings by application of optimized magnetic field, Materials
Chemistry and Physics (2020) 254, art. no. 123511
92) Mohitfar, S.H., Mahdavi, S., Etminanfar, M., Khalil-Allafi, J., Characteristics and tribological behavior of the
hard anodized 6061-T6 Al alloy, Journal of Alloys and Compounds (2020) 842, art. no. 155988
93) H Daneshvar, MS Safavi, V Khalili, J Khalil-Allafi, Influence of aging temperature on phase transformation
and mechanical behavior of NiTi thin films deposited by magnetron sputtering technique, Journal of Ultrafine
Grained and Nanostructured Materials 2020, 53 (1), 15-22
94) L Chitsaz-Khoyi, J Khalil-Allafi, M Etminanfar, Corrosion behaviour of TiC/N coating prepared by plasma
electrolytic saturation on NiTi, 2020, Surface Engineering, 1-9
95) Adelfar, M., Tavangar, R., Horandghadim, N., Khalil-Allafi, J., Evaluating superelastic and shape memory
effects using the photostress technique, Materials Today Communications (2020) 24, art. no. 101156

96) Safavi MS, Surmeneva MA, Surmenev RA, Khalil-Allafi J. RF-magnetron sputter deposited hydroxyapatitebased composite & multilayer coatings: A systematic review from mechanical, corrosion, and biological points
of view. Ceramics International. 2020 Sep 30.
97) Khalil-Allafi J, Daneshvar H, Safavi MS, Khalili V. A survey on crystallization kinetic behavior of direct
current magnetron sputter deposited NiTi thin films. Physica B: Condensed Matter. 2021 Aug 15;615:413086.
98) Shokri N, Safavi MS, Etminanfar M, Walsh FC, Khalil-Allafi J. Enhanced corrosion protection of NiTi
orthopedic implants by highly crystalline hydroxyapatite deposited by spin coating: The importance of pre treatment. Materials Chemistry and Physics. 2021 Feb 1;259:124041.
99) Radi A, Khalil-Allafi J, Heidarzadeh A, Yapici GG, Etminanfar MR, Mozafari SZ, Rezaei-Moghadam B.
Effect of Stress Aging Induced Precipitates on Corrosion Behavior of NiTi Shape Memory Alloys. Metals and
Materials International. 2021 Jan 31:1-7.
100) Safavi MS, Walsh FC, Surmeneva MA, Surmenev RA, Khalil-Allafi J. Electrodeposited hydroxyapatitebased biocoatings: Recent progress and future challenges. Coatings. 2021 Jan;11(1):110.
101) Mehrvarz A, Khalil-Allafi J, Etminanfar MR, Mahdavi S. The study of morphological evolution, biocorrosion
resistance, and bioactivity of pulse electrochemically deposited Hydroxyapatite/ZnO composite on NiTi
superelastic alloy. Surface and Coatings Technology. 2021 Oct 15;423:127628.
9
102) Safavi MS, Surmeneva MA, Surmenev RA, Khalil-Allafi J. RF-magnetron sputter deposited hydroxyapatitebased composite & multilayer coatings: A systematic review from mechanical, corrosion, and biological points of
view. Ceramics International. 2021 Feb 1; 47(3):3031-3053.
103) Chitsaz-Khoyi L, Khalil-Allafi J, Etminanfar MR. Corrosion behaviour of TiC/N coating prepared by plasma
electrolytic saturation on NiTi. Surface Engineering. 2021 Feb 1;

37(2):197-205.
104) Safavi MS, Walsh FC, Surmeneva MA, Surmenev RA, Khalil-Allafi J. Electrodeposited hydroxyapatitebased biocoatings: Recent progress and future challenges. Coatings 2021, 11, 110. 2021.
105) Mehrvarz A, Ghazanfar-Ahari Y, Khalil-Allafi J, Mahdavi S, Etminanfar MR. The microstructural features and corrosion behavior of Hydroxyapatite/ZnO nanocomposite electrodeposit on NiTi alloy: Effect of current density. Ceramics International. 2022 Jan15; 48(2): 2191-2202.
106) Ahmadiyan S, Khalil-Allafi J, Etminanfar MR, Safavi MS, Hosseini M. Antibacterial activity and biocompatibility of Ag-coated Ti implants: importance of surface modification parameters. Transactions of the IMF. 2022 Mar 4;100(2):93-102.
107) Safavi MS, Walsh FC, Visai L, Khalil-Allafi J. Progress in Niobium Oxide-Containing Coatings for Biomedical Applications: A Critical Review. ACS omega. 2022 Mar 11;7(11):9088-9107 .
108) Horandghadim N, Ghazanfar-Ahari Y, Khalil-Allafi J. Multiwalled-carbon nanotubes reinforced hydroxyapatite-tantalum pentoxide nanocomposite coating on Nitinol alloy: Antibacterial activity and Electrochemical properties. Surfaces and Interfaces. 2022 Apr 1. 29:101773.
109) Mehrvarz A, Khalil-Allafi J, Kahaie Khosrowshahi A. Biocompatibility and antibacterial behavior of electrochemically deposited Hydroxyapatite/ZnO porous nanocomposite on NiTi biomedical alloy. Ceramics International. 2022 Jun 1; 48(11):16326-16336.
110) Safavi MS, Bordbar-Khiabani A, Khalil-Allafi J, Mozafari M, Visai L. Additive Manufacturing: An Opportunity for the Fabrication of Near-Net-Shape NiTi Implants. Journal of Manufacturing and Materials Processing. 2022 Jun 14; 6(3):65.
111) Mahdiyeh Soltanalipour, Jafar Khalil-Allafi, "Superior in vitro corrosion resistance of the novel amorphous Ta/TaxOy multilayer coatings on self-expanding nitinol stents", Surface

and Coatings Technology, Volume 446,
25 September 2022, 128767
112) Mir Saman Safavi, Aydin Bordbar-Khiabani, Frank C Walsh, Masoud Mozafari, Jafar Khalil-Allafi, "Surface modified NiTi smart biomaterials: Surface engineering and biological compatibility", Current Opinion in Biomedical Engineering, Volume 25, March 2023, 100429
113) Nazila Horandghadim, Jafar Khalil-Allafi, Yashar Ghazanfar-Ahari, Erkan Ka□ar, "Effect of MWCNTs addition on structural, mechanical, and bio properties of electrophoretically deposited HA-Ta2O5 coating on NiTi", Surface and Coatings Technology, Volume 450, 25 November 2022, 129006
114) Alireza Mehrvarz, Jafar Khalil-Allafi, Amir Motallebzadeh, Vida Khalili, "The effect of ZnO nanoparticles on nanomechanical behavior of Hydroxyapatite electrodeposited on NiTi biomedical alloy", Ceramics International, Volume 48, Issue 23, Part A, 1 December 2022, Pages 35039-35049
115) Milad Hosseini, Jafar Khalil-Allafi, Mohamadreza Etminanfar, Mir Saman Safavi, Nora Bloise, Arash Ghalandarzadeh, "Tackling the challenges facing the clinical applications of pure PEO hydroxyapatite layers: Codeposition of YSZ nanoparticles", Materials Chemistry and Physics, Volume 293, 1 January 2023, 126899
116) Seyed Omid Reza Sheykholeslami, Jafar Khalil-Allafi, Mohamadreza Etminanfar, Vida Khalili, Alireza B Parsa, "Synthesis and development of novel spherical mesoporous SiO2/HA particles and incorporating them in electrodeposited hydroxyapatite coatings for biomedical applications", Surface and Coatings Technology, Volume 459, 25 April 2023, 129410
117) Nesa Abdian, Mohamadreza Etminanfar, Seyed Omid Reza Sheykholeslami, Hamed Hamishehkar, Jafar Khalil-Allafi, "Preparation and characterization of chitosan/hydroxyapatite scaffolds containing mesoporous SiO2-HA for drug delivery applications", Materials Chemistry and Physics, Volume 301, 1 June 2023, 127672
118) SH Mohitfar, MR Etminanfar, S Mahdavi, J Khalil-Allafi, "Characteristics and corrosion resistance of hardanodised 6061-T6 aluminium alloy", Transactions of the IMF, The International Journal of Surface Engineering and Coatings, Volume 101, 2023 - Issue 4
119) Mir Saman Safavi, Jafar Khalil-Allafi, Livia Visai, "Improved osteogenic activity of NiTi orthopedic implant by HAp-Nb2O5 composite

coatings: Materials and biological points of view", Biomaterials Advances Volume 150, July 2023, 213435

120) Arsalan Azimijam, Jafar Khalil-Allafi, Alireza Mehrvarz, Ehsan Akbari-Kharaji, "Effect of Manganese on Microstructural, Mechanical, and Electrochemical Properties of Ni-Resist Gray Cast Irons", International Journal of Metalcasting, 1-10, 2023

121) Seyed Omid Reza Sheykholeslami, Jafar Khalil-Allafi, Mohamadreza Etminanfar, "Improving the corrosion resistance and the osteointegration of hydroxyapatite coatings through the incorporation of synthesized mesoporous SiO2/HA particles", Ceramics International, Volume 49, Issue 21, 1 November 2023, Pages 33991-34004

122) F Marashi-Najafi, J Khalil-Allafi, S Mahdavi, "Superior multifunctional polypyrrole anticorrosion coating modified by polydopamine decorated barium titanate nanoparticles on NiTi shape memory alloys, Journal of Materials Research and Technology, Volume 26, September–October 2023, Pages 6823-6841

123) Mir Saman Safavi, Jafar Khalil-Allafi, Elisa Restivo, Arash Ghalandarzadeh, Milad Hosseini, Giacomo Dacarro, Lorenzo Malavasi, Antonella Milella, Andrea Listorti, Livia Visai, "Enhanced in vitro immersion behavior and antibacterial activity of NiTi orthopedic biomaterial by HAp -Nb2O5 composite deposits, Scientific Reports, volume 13, Article number: 16045 (2023)

124) Mir Saman Safavi, Jafar Khalil-Allafi, Iraj Ahadzadeh, Frank C Walsh, Livia Visai, "Improved corrosion protection of a NiTi implant by an electrodeposited HAp-Nb2O5 composite layer", Surface and Coatings Technology, Volume 470, 15 October 2023, 129822

125) Mir Saman Safavi, Jafar Khalil-Allafi, Amir Motallebzadeh, Cristina Volpini, Vida Khalili, Livia Visai, "Encouraging tribomechanical and biological responses of hydroxyapatite coatings reinforced by various levels of niobium pentoxide particles" Materials Advances, 2023, 4, 5618-5632

126) F Marashi-Najafi, J Khalil-Allafi, S Mahdavi, MR Etminanfar, V Khalili, AB Parsa, "Electropolymerization of functionalized barium titanate reinforced polypyrrole composite coatings on nitinol alloy for biomedical applications", Progress in Organic Coatings, Volume 186, January 2024, 107978

127) Mahdiyeh Soltanalipour, Jafar Khalil-Allafi, Alireza Mehrvarz, "Study

of tantalum-based coatings magnetron sputtered on NiTi alloy in argon and argon/nitrogen atmosphere", Ceramics International, Volume 50, Issue 3, Part A, 1 February 2024, Pages 4994-5006
128) Mahdiyeh Soltanalipour, Jafar Khalil-Allafi, Alireza Mehrvarz, Amir Kahaie Khosrowshahi, Effect of sputtering rate on morphological alterations, corrosion resistance, and endothelial biocompatibility by deposited tantalum oxide coatings on NiTi using magnetron, Journal of Materials Research and Technology, Volume 29, March–April 2024, Pages 3279-3290
129) F Marashi-Najafi, J Khalil-Allafi, S Mahdavi, H Hamishehkar, Influence of core-shell polydopaminebarium titanate doping on the osseointegration and cytotoxicity of the polypyrrole coatings applied by ECD on Nitinol orthopedic implants, Journal of Materials Research and Technology,Volume 29, March–April 2024, Pages 4373-4383

سوابق تحصیلی

مقطع تحصیلی	سال اخذ مدرک	رشته و گرایش تحصیلی	دانشگاه
کارشناسی	۱۳۶۶	مهندسی مواد- ریخته گری	دانشگاه صنعتی اصفهان
کارشناسی ارشد	۱۳۷۰	شناسایی و انتخاب مواد فلزی	دانشگاه علم و صنعت ایران
دکترای تخصصی	۱۳۸۱	مهندسی مواد-آلیاژهای حافظه دار	Ruhr University Bochum
فوق دکتری	۱۳۸۳	مهندسی مواد- مشخصه یابی مواد	Ruhr University Bochum

اطلاعات استخدامی

محل خدمت	عنوان سمت	نوع استخدام	نوع همکاری	پایه
دانشگاه صنعتی سهند	استاد	قطعی	تمام وقت	۴۱