



Contact details:

Faculty of Engineering, Department of Materials Engineering,
Tarbiat Modares University, Jalal Al Ahmad Street, Tehran-Iran.

P.O.Box: 14115-143

Tel: +98 21 82883325

Fax: +98 21 82884390

E-mail address: sanjabi@modares.ac.ir

<http://www.modares.ac.ir/~sanjabi>

Dr Sohrab Sanjabi

Current Position

Head of Nanomaterials Group since 2008, Associate Professor, Department of Materials Engineering, Tarbiat Modares University, Tehran-Iran.

Interests

Fabrication & characterisation of shape memory thin films and nanowires; theoretical approaches to the nanoscale. Self-cleaning photocatalytic thin films; smart films, high temperature nanocomposite coatings, self-repairing coatings, modelling on the nanoscale, Alloy nanowire electrodeposition.

Education

Ph.D. (2001- 2005), Materials Science and Engineering, Sharif University of Technology, Tehran-Iran

Dissertation topic: *Fabrication and Characterization of Nanostructured Shape Memory NiTiX (Hf) Thin Films for micro- electro-mechanical systems and Bio-MEMS applications*

Supervisors: Professor S.K. Sadrnezhad (Sharif University of Technology) and Dr. Z. H. Barber (University of Cambridge-UK)

Thesis grade: Excellent

M.Sc. (1998-2000), Materials Science and Engineering, Sharif University of Technology, Tehran-Iran

Thesis topic: Aluminized coatings for corrosion protection of nickel-base Superalloy RENE80

Supervisor: Dr. M. Ghorbani

Thesis grade: Excellent

B.Sc. (1994–1998), Materials Science and Engineering, Shiraz University, Shiraz- Iran (Top first among 40)

B.Sc. Project: Analytical analysis of metal spinning

Supervisor: Professor M.M. Moshksar

Awards and Achievements

Top 100 researchers in Iran, I was enlisted as top 100 among Iranian researchers in all scientific researches. A grant was allocated to me from Scientific Deputy of Iranian Presidency in 2015.

The UK Royal Society International Short Visits Award 2008, Visiting at Cambridge University, Department of Materials Science and Metallurgy, Device Materials Group, from 1 July to 23 Sept. 2008.

Scholarship from Iranian Ministry of Higher Education to conduct one-year research, as a part of PhD degree, at Department of Materials Science and Metallurgy, University of Cambridge, 2004-2005.

First Rank in Graduate Study I have received the highest score in the national examination of entrance to master program of studies in all fields of Materials Science & Engineering in Iran, among 1318 applicants (B.Sc.), 1998.

**Conference
Responsibility**

Organizer of the **First National Conference of Graduated Students in Nanotechnology-Iran**, 19-21 Feb 2006, Tarbiat Modares University, Tehran-Iran

Teaching

- The Science and Technology of Thin Films, PhD course, Tarbiat Modares University.
- Nanothermodynamics, MSc course, Tarbiat Modares University.
- Nanomaterials I, MSc and PhD courses, Tarbiat Modares University.
- Nanoparticle synthesis and Characterization, MSc course, Tarbiat Modares University.
- Nanotechnology II, PhD courses, Tarbiat Modares University.

**Students
Supervision**

Current MSc students(Supervising):

- **Poria Mohammadi(2017-2019):**MoS₂ Electrocatalysts

Current PhD students

- **A. Salimi(2018-2022)-supervisor:** composite supercapacitor
- **Rahbar Niazi(2017-2021) supervisor:** NiMnGa transformation simulation
- **M. Sheikhzadeh(2014-2018)-supervisor:** Nanostructure NiCuO₄ supercapacitor
- **S. Khabazian (2013-2017)-supervisor:** Nanocrystalline Diamond coating for dry gas seal components
- **M.R. Gorji(2012-2017)-supervisor:** High temperature nanocomposite coatings for gas turbine blade repairing by laser infiltration(graduated)
- **A Maleki (2011-2016)- supervisor:** Electrodeposition of NiMnGa shape memory nanowires(graduated)

- **B. Koze Garkalchi, (2007-2011)-advisor:** TiO₂ nanoparticle synthesis(graduated)

Graduated Students:

- **N Farahbakhsh(2016-2018)** CuO Electrocatalysts
- **N Taherian(2016-2018)** NiMnSn electrodeposition
- **A. Koravand (2012-2016):** Ni/GO electrodeposition by Ionic Liquids
- **M. Eilbeigi (2012-2016):**GO/Polyester self-repairing nanocoatings
- **A Salimi(2012-2016):**WC/Ni nanopowders
- **SA. Mosavi(2013-2015):** Ni/GO self-cleaning coatings
- **E. Noori (2013-2015):** WC/BNi₂ nanocoatings
- **MR Mohammadi (2012-2014):** Size effect on Ag-Cu phase diagrams
- **R. Rezanejhadi (2012-2014):** NiTi nanoparticle shape memory effect
- **H. Mikani (2012-2014):** TiC nanopowder
- **E. NoorMohamadi (2011-2013):** Electrodeposition of GO/TiO₂ thin films
- **H. Mehrabi(2011-2013):** ALD of TiO₂ thin films
- **SA Hossaini(2011-2013):** Electrodeposition of GO/Ni thin films
- **A. Tayefe(2010-2012):** Electrodeposition of nanostructure Al
- **H. Assadi (2009-2011):** Easy to clean coatings
- **M. Shaykhzade (2009-2011):** TiC/Steel nanocomposite for surface repairing
- **M. Delnavaz, Environmental Department(2007-2011)-advisor:** TiO₂ nanocoatings to recycle waterwaste
- **R. Fathi, (2008-2010):** Fabrication of shape memory nanowires
- **N. Bayat, (2008-2010):** Nanocontacting of nanowires to shape memory thin films
- **B. Abdolahi, (2007-2009):** Self cleaning TiO₂ thin films by sputtering
- **S. Khabazian, (2007-2009):** CNT/Ni nanocoatings by electroplating
- **Morteza Torabi, MSc student of Iran University of Science and Technology (2007-2009):** Nanocomposites in Fuel Cell
- **Ali Safaei, MSc student (2006-2008: Graduated):** Melting temperature of metallic nanoparticles
- **Mohammad Attarian Shandiz, MSc student (2006-2008: Graduated):** Melting

temperature modeling of nanosolids

- **Nahid Pirhady Tavandashti**, MSc student (2006-2008: Graduated): Self repairing nanocoatings for corrosion protection
- **Ameneh Ghasemi**, MSc student(2006-2009: Graduated): TiO₂/CeO₂ layer(Advisor)
- **Kave Hajizadeh**, MSc student (2005-2007: Graduated): ECAP of 7075 Al alloy
- **Mohsen Motamedi**, MSc student (2005-2007: Graduated): Synthesis of high temperature Co-WC nanocomposite coatings by thermal spraying
- **Hamid Javadi**, MSc student (2005-2007:Graduated): Nanostructured TiO₂ self cleaning coatings based on sol gel route
- **Ehsan Saebnori**, MSc student (2006-2008-Graduated): Corrosion behavior of shape memory NiTi thin films (Advising)

Publications

- A Salimi, S Sanjabi, Abnormal growth of core-shell WC@Cu/NiCrBSi composite cladding, *Surface Coatings and Technology*, 2018
- A Salimi, S Sanjabi, Infiltration brazed core-shell WC@NiP/NiCrBSi composite cladding, *Surface Coatings and Technology*, 2018
- N Farahbakhsh, S Sanjabi, Activated Cu/Cu₂O foam with Ni nanoparticles for electrocatalytic activity enhancement of hydrogen evolution reaction (HER) in acidic media, *Journal of Industrial and Engineering Chemistry*, 2018
- M Sheikhzadeh, S Sanjabi, MR Gorji, S Khabazian, Nano composite foam layer of CuO/graphene oxide (GO) for high performance supercapacitor, *Synthetic Metals*, 2018.
- MR Gorji, Christian Edtmaier, S Sanjabi, Synthesis of Ni/TiC composite coating by infiltration sintering of electrophoretic deposited layers, *Materials and Design* 2017
- K. Maleki , S.Sanjabi , Z.Alemipour AC electrodeposition of NiMn alloy nanowires in AAO template *Journal of Modern Physics B* 29(2015) 1550224.
- K. Maleki , S.Sanjabi , Z.Alemipour DC electrodeposition of NiGa alloy nanowires in AAO template *Journal of Magnetism and Magnetic Materials* 395 (2015) 289-293.
- S Sanjabi, A Obeydavi, Synthesis and characterization of nanocrystalline MgAl₂O₄

spinel via modified sol–gel method **Journal of Alloys and Compounds** (2015) 645, 535-540

- E. Saebnoori, T. Shahrabi, S. Sanjabi, M. Ghaffari, Z.H. Barber Surface characteristics and electrochemical behaviour of sputter-deposited NiTi thin film, **Philosophical Magazine** 95(2015) 1696–1716.
- M. Delnavaz, B. Ayati, H. Ganjidoust, **S. Sanjabi**, Application of concrete surfaces as novel substrate for immobilization of TiO₂ nano powder in photocatalytic treatment of phenolic water **JOURNAL OF ENVIRONMENTAL HEALTH SCIENCE & ENGINEERING** 13 (2015) 58.
- S.A. Lajevardi, T. Shahrabi, J.A. Szpunar, A. Sabour Rouhaghdam, S. Sanjabi, Characterization of the microstructure and texture of functionally graded nickel-Al₂O₃ nano composite coating produced by pulse deposition **Surface and Coatings Technology** 232(2012)851-859.
- V. Hasannaemi, T. Shahrabi, S. Sanjabi, Fabrication of NiTi layer via co-electrodeposition of nickel and titanium **Surface and Coatings Technology** 210(2012)10-14.
- M. Delnavaz, B. Ayati, H. Ganjidoust, **S. Sanjabi**, Kinetic study of photocatalytic process for treatment phenolic wastewater by TiO₂ nanopowder immobilized on concret surface, **Toxicological & Environmental Chemistry** 94 (2012) 1086-1098.
- N. Bayat, **S.Sanjabi**, Z.H. Barber, Growth of Copper nanowire arrays on NiTi thin films, **Surface and Coatings Technology** 257(2012)8493-8499.
- M.R. Gorji, **S. Sanjabi**, Z.H. Barber, Nanoindentation of ion implanted NiTi shape memory thin films, **Micro & Nanoletters** 7(2012)641-645.
- M. Sheikhzadeh, **S. Sanjabi**, Structural characterization of stainless steel/TiC nanocomposites produced by high-energy ball-milling method at different milling times, **Materials and Design** (2012).
- M.R. Gorji, **S. Sanjabi**, Corrosion behavior of ion implanted NiTi shape memory alloy thin films, **Materials Letters** 73 (2012) 179–182.
- A. Shirani, M. Momenzadeh, **S. Sanjabi**, Surfactant effect on electrochemical

behavior of Co-TiO₂ nanocomposite coatings, *Surface & Coatings Technology* **206** (2012) 2870–2876.

- **S.Sanjabi**, N. Bayat, Thermodynamic modeling of particle formation and reshaping in metallic catalyst nanofilms for carbon nanotube growth, *Modelling Simul. Mater. Sci. Eng.* **20** (2012) 035002 (10pp).
- A. Faramarzi, **S. Sanjabi**, Stepwise melting model for formation of Ni catalyst particles for carbon nanotubes growth, *Journal of Physical Chemistry C* **115**(2011)18958-18966.
- A. Fathi, **S. Sanjabi**, N Bayat, NiMn nanowires synthesis by electrodeposition in AAO, *Materials letters* **66**(2012)346-348.
- A. Fathi, **S. Sanjabi**, Electrodeposition of nanostructure NiMn thin films, *Current Applied Physics* **12**(2012)88-92.
- SK Sadrmezhaad, N Yasavol, M Ganjali, S Sanjabi, Property change during nanosecond pulse laser annealing of amorphous NiTi thin film *Bulletin of Materials Science*(2012) 35 (3), 357-364
- A Shirani, **S Sanjabi** The morphology and corrosion resistance of electrodeposited Co-TiO₂ nanocomposite coatings, *Materials and Corrosion*(2012) **63** (8), 695-702
- M Momenzadeh, **S Sanjabi** The effect of TiO₂ nanoparticle codeposition on microstructure and corrosion resistance of electroless Ni-P coating, *Materials and Corrosion*(2012) **63** (7), 614-619
- B. Abdolahi, S.Sanjabi, V. Ahmadi, High transparent TiO_{2-x}N_x/TiO₂/ZnO multi layer for photocatalytic application, *Applied Surface Science* **257**(2011)10434-10442.
- BC Bayer, S Sanjabi, C Baehtz, CT Wirth, S Esconjauregui, Carbon nanotube forest growth on NiTi shape memory alloy thin films for thermal actuation, *Thin Solid Films* (2011) 519 (18), 6126-6129
- Behzad Koozegar Kaleji, Rasoul Sarraf-Mamoory , **Sohrab Sanjabi**, Photocatalytic evaluation of a titania thin film on glazed porcelain substrates via a TiCl₄ precursor,

Reac Kinet Mech Cat (2011) 103:289–298.

- S. Khabazian, S. Sanjabi, Successful incorporation of multi-walled carbon nanotubes in nickel electrodeposited coating by electrophoresis, *Applied Surface Science* 257(2011)9366-9370.
- S. Khabazian, S. Sanjabi, The effect of multi-walled carbon nanotube pretreatments on the electrodeposition of Ni–MWCNTs coatings, *Applied Surface Science* 257(2011)5850-5856.
- N. Bayat, **S.Sanjabi**, Z.H. Barber, Improvement of corrosion resistance of NiTi sputtered thin films by anodization, *Applied Surface Science* 257(2011)8493-8499.
- B.Arab, **S.Sanjabi**, A. Shokuhfar, Size Dependency of Self-Diffusion and Creep Behavior of Nanostructured Metals, *Materials Letters* 65(2011)712-715.
- S Sanjabi Corrosion behavior of organically modified silicates coatings *Anti-Corrosion Methods and Materials* (2011) 58 (5), 245-249.
- B. Abdolahi, **S.Sanjabi**, V. Ahmadi, The effect of sputtering gas pressure on the morphology and photocatalytic activity of TiO₂ thin *Vacuum* 85(2010)400-405.
- B. Abdolahi, **S.Sanjabi**, V. Ahmadi, Optical and photocatalytic characteristics of nitrogen doped TiO₂ thin film deposited by magnetron sputtering, *Scientica Iranica* 17(2010)102-107.
- N. Pirhady Tavandashti, **S.Sanjabi**, Corrosion study of hybrid sol-gel coatings containing boehmite nanoparticles loaded with cerium nitrate corrosion inhibitor *Progress in Organic Coatings*, *Progress in Organic Coatings* 69(2010)384-391.
- N. Pirhady Tavandashti, **S.Sanjabi**, T. Shahrabi Preparation and characterization of silica/epoxy hybrid nanocomposite coatings containing boehmite nanoparticles for corrosion protection, *Corrosion Science and Engineering* 46(2011)261-266.
- A. Ghasemi, T. Shahrabi, A.A. Oskuie, H. Hasannejad and **S. Sanjabi**, Effect of heat treatment on corrosion properties of sol–gel titania–ceria nanocomposite coating, *Journal of alloys and Compounds* 504(2010)237.
- N. Pirhady Tavandashti, **S.Sanjabi**, T. Shahrabi Evolution of corrosion protection performance of hybrid silica based sol–gel nanocoatings by doping inorganic

inhibitor, *Materials and Corrosion* 61(2010)9999-1.

- **S. Sanjabi**, Z.H. Barber, The effect of film composition on the structure and mechanical properties of NiTi shape memory thin films *Surface and Coatings Technology* 204(2010)1299.
- **S. Sanjabi**, A. Faramarzi, Z.H.Barber, Heterogeneous formation of Ni catalyst particles for carbon nanotubes growth, *Journal of Physical Chemistry C* 113(2009)8652-8659.
- N. Pirhady Tavandashti, **S.Sanjabi**, T. Shahrabi Corrosion Protection Evaluation of Silica/Epoxy Hybrid Nanocomposite Coatings to AA2024, *Progress in Organic Coatings*, 65(2009)182-186.
- S.K. Sadrnezhad, E. Rezvani, **S. Sanjabi**, A.A. Ziaei Moayed, Pulsed-Laser Annealing of NiTi Shape Memory Alloy Thin Film, *J. Mat. Sci. Tech.* 25/1(2009) 135-140.
- **S. Sanjabi**, M. Naderi, H. Zare Bidaki, S.K. Sadrnezhad, Characterization of Sputtered NiTi Shape Memory Alloy Thin Films , *Scientia Iranica*, 16/3(2009)248-252.
- **S. Sanjabi**, A. Faramarzi, M. Hamdam Momen , Z.H.Barber, Thermodynamics approach of the formation of Ni catalyst particles for carbon nanotubes growth, *Journal of Physics and Chemistry of Solids* 69(2008)1940-1944.
- T. Shahrabi, **S.Sanjabi**, E. Saebnoori, Z.H. Barber, Extremely High Pitting Resistance of NiTi thin films in simulated body fluids, *Materials Letters*, 62(2008)2791-2794.
- M. Attarian, A. Safaei, **S.Sanjabi**, Z.H. Barber, Modeling of the melting temperature of nanoparticles by calculation of average coordination number and cohesive energy, *Solid State Communications*,145/9-10(2008)432-437.
- Y. Q. Fu, **S. Sanjabi**, Z. H. Barber, W. M. Huang, M.Cai, S. Zhang J. K. Luo, A. J. Flewitt, and W. I. Milne, In-Situ Observation of Transition Between Surface Relief and Wrinkling in Thin Film Shape Memory Alloys, *Journal of Nanoscience and Nanotechnology* 8/5(2008) 2588-2596.

- A J Muir Wood, **S Sanjabi**, Y.Q.Fu, Z H Barber and T W Clyne, Nanoindentation of Binary and Ternary Ni-Ti-based Shape Memory Alloy Thin Films, *Surface and Coatings Technology*, 202(2008)3115-3120.
- A. Safaei, M. Attarian, **S.Sanjabi**, Z.H. Barber, Modeling the melting temperature of nanoparticles by an analytical approach, *Journal of Physical Chemistry C* 112(2008)99-105.
- A. Safaei, M. Attarian, **S.Sanjabi**, Z.H. Barber, Modeling of the size effect on the melting temperature of nanoparticles, nanowires and nanofilms *Journal of Physics-Condensed Matter* 19, 216216 (2007) 1-9.
- M. Attarian, A. Safaei, **S.Sanjabi**, Z.H. Barber, Modeling size dependence of melting temperature of metallic nanoparticles, *Journal of Physics and Chemistry of Solids*, 68(2007)1396-1399.
- **S. Sanjabi**, S.K. Sadrnezhad, Z.H.Barber Sputter alloying of Ni, Ti and Hf for fabrication of high temperature shape memory thin films, *Materials Science and Technology*, 23/8(2007)987-991.
- M. Cai, Y. Q. Fu, **S. Sanjabi**, Z. Barber, and J.T. Dickinson: Effect of composition on surface relief morphology in TiNiCu thin films, *Surface and Coatings Technology*, 201(2007)5843-5849.
- Y.Q. Fu, **S. Sanjabi** , Z. Barber , W. Clyne , W. Huang, M. Cai , J. Luo , A. Flewitt and W.I. Milne, Wrinkling and surface relief in TiNiCu thin films, *Applied Physics Letters*, 89, 171922 (2006)1-5.
- **S. Sanjabi**, Y.Z. Cao, S.K. Sadrnezhad, Z.H. Barber, Thin film processing of binary and ternary NiTi based shape memory thin films, *Journal of Vacuum Science and Technology A*, 23/ 5(2005) 1425-1430.
- **S. Sanjabi**, Y.Z. Cao, Z.H. Barber, Multi-gun sputter deposition of NiTi_{1-x}Hf_x thin films for high temperature microactuator applications, *Sensors and Actuators A*, 121/2(2005) 543-548.
- **S. Sanjabi**, S.K. Sadrnezhad, K.A. Yates, Z.H. Barber, Growth and characterization of Ti_xNi_{1-x} shape memory thin films using simultaneous sputter deposition from

separate elemental targets, *Thin Solid Films* 491/1-2(2005) 190-196.

**Contribution to
Conf. Proc.**

- **S. Sanjabi**, M.R.Gorji, Nanoindentation and Nanoscratching behaviours of ion implanted NiTi shape memory alloy thin film, Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, I.R. Iran.
- S. Khabazian, **S.Sanjabi**, M. Razaghi, Preliminary Study of Electrophoretic deposition of vertically aligned MWCNT on metallic electrode 2nd International Conference on Ultrafine Grained and Nanostructured Materials, University of Tehran Tehran, Iran. 14-15 Nov. 2009
- B. Abdolahi, **S.Sanjabi**, V. Ahmadi, Nanostructured photochemical TiO₂ thin film fabricated by magnetron sputtering on glass , 2nd International Conference on Ultrafine Grained and Nanostructured Materials, University of Tehran Tehran, Iran. 14-15 Nov. 2009
- **S.Sanjabi**, Mechanical study of NiTi shape memory thin films by nanoindentation, National Conference on Surface Engineering and Heat treatment, Isfahan University of Technology, Isfahan-Iran, 2006, pp1539-1549.
- **S. Sanjabi**, S.K. Sadrnezhaad, Z.H.Barber, Fabrication of Ni₅₀Ti_{50-x}Hf_x memory thin film using simultaneous sputter deposition from separated elemental targets, the International Conference on Shape Memory and Superelastic Technologies, **SMST 2006, California**, USA, 11-15 May 2006 (ASM International organization), 315-322.
- **S. Sanjabi**, S.K. Sadrnezhaad, Z.H. Barber, Fabrication and characterization of shape memory NiTi thin films for MEMS applications, First Tehran International Conference on Manufacturing Engineering, **TICME 2005**, 21-23 Dec. 2005.
- **S. Sanjabi**, S.K. Sadrnezhaad, Study of phase transformation, microstructural, and high temperature shape memory effect of NiTiHf thin films, Ninth Annual Meeting of Iranian Metallurgical Engineering Society, Shiraz University, Iran, 15-17 Nov.2005.
- **S.Sanjabi**, S.K. Sadrnezhaad, and Z.H. Barber, Fabrication of Ti_xNi_{1-x} memory thin film using simultaneous sputter deposition from separated elemental targets,

Presented and accepted for publication in the Conf. Proc. Of the International Conference on Shape Memory and Superelastic Technologies, **Baden Baden-Germany**, 2-7 Oct. 2004, pp435-440.

- **S.Sanjabi** and M.Ghorbani, Aluminizing of nickel-base superalloy RENE80, The Fifth Annual Meeting of Iranian Metallurgical Engineering Society, Tehran-Iran, 5-7 Nov 2001.
- S.Saeri, **S.Sanjabi**, The cracking of HP modified stainless tube in olefin unit, Steel 79, Ahvaz-Iran, 21-24 February 2001.
- K. Maleki , S.Sanjabi , Z.Alemipour DC electrodeposition of NiMnGa alloy nanowires in AAO template Nanostructures Conference Kish Ilands 2016.
- H. Zare, M. Naderi, **S.Sanjabi**, Z.H. Barber, NiTi shape memory thin films for MEMS and BioMEMS, The First Nanotechnology Conference in Southern Prt of Iran, Shiraz University, 12-15 Feb 2007.
- J.W. Muir, **S. Sanjabi**, Z.H. Barber, T.W. Clyne, Mechanical response of shape memory bulk and thin films, presented, **EOUROMAT 2005**, Sept. 2005, **Czech Republic**.
- **S.Sanjabi**, Z.H. Barber, Development and characterization of shape memory NiTiX (=Cu,Hf,...), Presented as a talk in *Gordon Lab. seminar series*, Department of Materials Science and Metallurgy, **University of Cambridge, UK**, 15 Oct. 2004.
- **S.Sanjabi**, Z.H. Barber and S.K. Sadrnezhad, Fabrication of shape memory NiTi thin films, presented in the 12 Iranian Research Conferences in Europe (IRCE2004), **Manchester-UK**, 2-4 July 2004.
- **S.Sanjabi** and M.Ghorbani, Morphology of aluminized coatings, Conference Studentship of Materials Science, Sharif University of Technology, Tehran-Iran, 24-26 April 2001.
- **S.Sanjabi** and M.Ghorbani, Aluminizing of first stage aero gas turbine, Aerospace Conference 2000, Sharif University of Technology, Tehran-Iran, 13-15 Jan 2000.

Conference
Presentation

Working skills

I am able to work with the following equipment (trained in **Cambridge University-UK**).

- Ultra High Vacuum (UHV) sputtering (DC and RF)
- Profilometry
- Controlled temperature X-ray diffraction (Philips PW1030 and Siemens 500)
- SEM (Jeol 5800 LV and CamScan 2000X)
- Differential Scanning Calorimetry (DSC)(Q1000)
- Atomic Force Microscopy (AFM) (Nanoscope III)
- Nanoindentation (Micro-Material UK) (Berkovich and spherical tip)
- TEM (preliminary work on NiTi films).

Work Experience

- **Technical Advisor in Parto Company(Gas Turbine Blade Manufacturing) (2000-2003) Address: Pole Fardis, Janbe Niroghah Montazere Ghaem, Karaj-Iran**
 - ✓ Working on Reverse Engineering of GE frame 9, Siemens V94.2 blades and Vanes in Coating section.
 - ✓ Transferring of Know-How of the Coatings of mentioned parts from Elbar and Siemens Companies.
 - ✓ Establishing technical library for Parto Company
 - ✓ Preparing a technical report for Tavanir on Blade and Vane manufacturing
- **Iranian Institute of Petroleum (1998-1999)**

Investigation the cause of cracking of HP modified Olefin Tube in welding zones of Tabriz Petrochemical

Peer Review

- 1- Thin Solid Films**
- 2- Materials Science and Engineering A**
- 3- International Journal of Engineering (IRAN)**
- 4- Smart Structures**
- 5- Journal of Physical Chemistry**
- 6- Journal of Colloids, Surface and Interface**
- 7- Physics and Chemistry of Materials**
- 8- Physica D**
- 9- Surface and Coatings Technology**
- 10- Vacuum**

Laboratory

Nanomaterials lab.

- 1-Sol gel facilities,
- 2- DC and AC Electrodeposition,
- 3- Tube furnace (1500C) for nanotube growth and heat treatment,
- 4-Vacuum Furnace (up to 1500C)
- 4- Planetary milling under controlled atmosphere
- 5- Sonicator,.....