

Curriculum Vitae

Mehdi Roein-Peikar

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Education:

- 2015-2016 **Ph.D. Candidate**, Johns Hopkins School of Medicine, Department of Biophysics.
➤ Taekjip Ha's lab, Biomechanics Group.
- 2012- 2015 **M.Sc.**, University of Illinois at Urbana-Champaign (UIUC), Physics Department.
- 2007- 2010 **Residency in Orthodontics**, Shiraz University of Medical Sciences, Shiraz, Iran.
- 2001- 2007 **Doctorate of Dental Surgery**, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Honors:

- 2015 Patent for a novel technique in orthodontics
- 2015 NSF Innovation Corps (I-Corps) award
- 2015 Edelheit Fellowship award in Biological Physics
- 2015 Highlighted discovery in cell.com and phys.org (The Princess and The Pea: A Story of Biomechanics)
- 2015 Highlighted talk in 59th Biophysical Society Meeting among more than 3000 presentations, Baltimore
- 2015 Referee/ Reviewer for the journal *Progress in Orthodontics*
- 2014 Gianturco Foundation Scholarship, Mayo Clinic
- 2014 Finalist of International HHMI fellowship, *Howard Hughes Medical Institute*
- 2013 American Physical Society DPF Meeting award for presentation at UC Santa Cruz
- 2012 Dean's Scholarship, Physics Department
- 2010 1st rank in the Clinical Iranian Board of Orthodontics, Iran
- 2008& 2009 Bronze and gold medals in swimming race, Olympiad of universities of medical sciences
- 2007 4th rank in the national entrance examination of Dentistry Specialty among about 3000 dentists, Iran
- 2001 9th rank in the Konkoor (entrance examination of universities) among 410,231 students
➤ Received appreciation from president of Iran for the rank in Konkoor
- 1997 Selected for National Organization for Development of Exceptional Talents (NODET), Iran

Teaching Experience:

- 2013 **Teaching Assistant**, Ranked as Outstanding TA, UIUC Physics Department
- 2012 **Teaching Assistant**, Ranked as Excellent TA, UIUC Physics Department
- 2010- 2011 **Assistant Professor**, Shiraz University of Medical Sciences, Department of Orthodontics

Publication (Book Chapter):

Book Title: Orthodontic Treatment.

Chapter title: The Use of Mini-Implants (Temporary Anchorage Devices) in Resolving Orthodontic Problems

ISBN 978-953-51-0143-7, InTech, DOI: 10.5772/33301. (2012)

Available at: <http://goo.gl/BphcvU>

Accepted, submitted and In Preparation Papers:

1. Lee, Min Kyung; Park, Jooyeon; Wang, Xuefeng; Roein-Peikar, Mehdi; Ko, Eunkyung; Qin, Ellen; Lee, Jonghwi; Ha, Taekjip; Kong, Hyunjoon "Lee, Min Kyung; Park, Jooyeon; Wang, Xuefeng; Roein-Peikar, Mehdi; Ko, Eunkyung; Qin, Ellen; Lee, Jonghwi; Ha, Taekjip; Kong, Hyunjoon "Rupture Force of Cell Adhesion Ligand Tethers Modulates Biological Activities of a Cell-laden Hydrogel" Chemical Communication (Accepted)
2. Mechanical Heterogeneity: A New Determinant in Biomechanics (In Preparation)

Published Papers (Peer Reviewed):

1. **Roein-Peikar, Mehdi**, Qian Xu, Xuefeng Wang, and Taekjip Ha. "Ultrasensitivity of Cell Adhesion to the Presence of Mechanically Strong Ligands." *Physical Review X* 6, no. 1 (2016): 011001.
2. Wang, X., Sun, J., Xu, Q., Chowdhury, F., **Roein-Peikar, M.**, Wang, Y., & Ha, T. (2015). Integrin Molecular Tension within Motile Focal Adhesions. *Biophysical Journal*, 109(11), 2259-2267.
3. Oshagh, M.; Danaei, S. M.; Sardarian, A.; Alipour, A.; **Roein-Peikar, M.**; Khaksar, Y."Root Parallelism of Canine and Second Premolar in Preadjusted and Standard Edgewise Systems: A Comparative Study." *Galen Medical Journal* 3.3 (2014).
4. Zahed, M.; Momeni Danaei, S.; Oshagh, M.; **Roein-Peikar, M.** "A Comparison of Apical Root Resorption in Incisors After Fixed Orthodontic Treatment with Standard Edgewise and Straight wire (MBT) Method", *International Journal of Dental Clinics*. 2013.
5. Salehi, P.; Zarif H.; **Roein-Peikar M.**; "Comparison of Survival Time between Two Types of Orthodontic Fixed Retainers: a Prospective Randomized Clinical Trial", *Progress in Orthodontics*. 2013.
6. Oshagh, M.; Aleyasin, Z.; **Roein-Peikar, M.** "The Effect of Forehead and Neck Position in Profile Esthetics" *European Journal of Esthetic Dentistry* 7(4):454-466.
7. Momeni Danaei, S.; Safavi, A.; **Roein-Peikar, M.**; Oshagh, M.; Iranpoor, S.; Omidkhoda, S.M. "Ion Release from Orthodontic Brackets in Three Different Mouthwashes - In Vitro Study", *American Journal of Orthodontics & Dentofacial Orthopedics (AJO)*-2011, 730-734.
8. Salehi, P.; **Roein-Peikar, M.**; Davari, M.; Emami, Z.; ZarifNajafi, H."Prediction of Mesiodistal Width of Unerrupted Canines and Premolars in South Iranian Population with Presenting New Regression Equations" *Journal of Dental Medicine-Tehran University of Medical Sciences*. 2010, 23(2), 6-11.
9. **Roein-Peikar, M.**; Salehi, P.; Emami, Z.; Davari, M.; ZarifNajafi, H. "Evaluation of Simple Method to Predict the Anterior and Overall Bolton Discrepancy in a South Iranian Population" *Journal of Mashhad Dental School*. 2010, 34(3), 209-18.
10. Salehi, P.; Pakshir, H.M; **Roein-Peikar, M.**; Emami, Z.; Davari, M. "Evaluating the Accuracy of Moyers Prediction Tables and Tanaka-Johnston Regression Equations in a Sample of Iranian Population and Presenting New Regression Equations in Space Analysis" *Journal of Dentistry*. 2010, 12(1), 34-49.
11. Pakshir, H.M.; Salehi, P.; **Roein-Peikar, M.**; Emami Z. "Designing a Software for Space Analysis and Comparing the Accuracy of Tooth Measurements by Digital and Manual Methods" *Journal of Dentistry*. 2010, 12(3), 239-251.

Leadership Experience:

- 2007- 2010 Editor in chief of *Arad Dental Magazine*, Shiraz
- Received multiple appreciations from president of Shiraz University of Medical Sciences
 - Magazine Available at: <http://arad.sums.ac.ir/>
- 2007- 2011 Held several live workshops on patients, Shiraz
- 2011 Scientific head of the Conference of Dentistry, Shiraz
- 2001-2007 Participation in several medical workshops and summer schools, Iran

Professional Associations:

- 2015- Present Member of American Association of Orthodontists
- 2012- Present Member of American Biophysical Society
- 2012- Present Member of American Physical Society
- 1997- 2011 Member of National Organization for Development of Exceptional Talents (NODET), Iran
- 2007- 2011 Member of Iranian Orthodontic Research Center, Iran
- 2001- 2007 Member of executive committee in several dental conferences, Iran
- 2001-2011 Member of Iranian Lifeguard Federation

Language Skills:

Persian (Farsi): Native

English: Fluent

French: Conversational [International Certificate for French Language (DELF A2)]

German: Fair

Programming and Coding Skills:

C++/ Fortran/ Mathematica/ MATLAB/ Latex/COMSOL/SOLIDWORKS/Autodesk Inventor/Abaqus

33 Oral and Poster Presentations in Seminars, Conferences and Meetings:

- Oct. 2015 **BMES 2015 Annual Meeting, Tampa, FL.**
1. Mechanical Heterogeneity: A New Concept for Cell Adhesion.
- May. 2015 **IGB Fellows Symposium, UIUC, IL.**
2. A New Story in Biomechanics.
- Feb. 2015 **Biophysical Society 59th Annual Meeting, Baltimore, MD.**
3. The Princess and the Pea: A Story of Biomechanics.
- Nov. 2014 **CPLC Symposium, UIUC, IL.**
4. Sensitivity of Cells to Mechanical Heterogeneity.
- Oct. 2014 **Individualizing Medicine Conference, Mayo Clinic, Rochester, MN.**
5. Force Spectroscopy of Single Molecule Cellular Mechanics.
- Aug. 2014 **3rd Midwest Single Molecule Workshop, UIUC, IL.**
6. Ultra-sensitivity of Cells to their Mechanical Environment.
- May 2014 **IGB Fellows Symposium, UIUC, IL.**
7. Mechanobiology of Cell Adhesion.
- Aug. 2013 **Meeting of the American Physical Society, Santa-Cruz, CA.**
8. Understanding light: Why we Need a Terascale Photon Collider?
- May 2010 **8th International Congress of Iranian Association of Orthodontists, Tehran/Iran.**
9. Do People with Mandibular Prognathism Have a Larger Frontal Sinus?
- Jun. 2010 **1st Congress of LASER Application in Dentistry, Gilan/Iran.**
10. Applications of LASER in Orthodontics.
- Nov. 2009 **9th International Congress of Iranian Association of Periodontists, Tehran/Iran.**
11. Frenectomy as a Choice of Treatment of Maxillary Midline Diastema.
- Oct. 2009 **9th International Congress of Iranian Association of Prosthodontists, Mashhad/Iran.**
12. The Relationship of Orthodontics and Prosthodontics in Missing Teeth Treatment Procedures.
- Aug. 2009 **12th International Congress of Iranian Association of Endodontists, Tehran/Iran.**
13. Endodontic-Orthodontic Relationship- a Review of Literature.
- May 2009 **31st Asia Pacific Dental Congress 2009, Hong Kong.**
14. Is There a Relationship between Center of Cranium, Nasion and Maxillary Length?
- May 2009 **7th International Congress of Iranian Association of Orthodontists, Hamadan/Iran.**
15. Changes in Maxillary and Mandibular Arch after Rapid Maxillary Expansion.
16. Facial Soft Tissue Profile Changes Following BSSO and Subcondylar Mandibular Setback.
17. Root Proximity and Root Contact during Insertion of Miniscrew for Orthodontic Anchorage.
18. Mechanical and Biological Aspects of Root Resorption.
- Oct. 2009 **2nd Congress of Iranian Dental Residents, Tehran/Iran.**
19. Are the Moyer's Tables Appropriate for the Iranian Population?
20. Symmetry in Mesiodistal Width of the Tooth in Right and Left Quadrants of Jaws.
21. The Effect of Environmental Factors on Force Decay Pattern of 3 Force Delivery Systems.
- May 2009 **49th Congress of Iranian Dental Association, Tehran/Iran.**
22. Periodontal Considerations for Impacted Canines in Orthodontic Patients.

- Jan. 2008 **1st International Congress of Iranian Association of Maxillofacial Radiologists, Tehran/Iran.**
23. Comparing the Accuracy of Landmark Identification in Cephalograms in Digital and Manual Methods.
- Nov. 2008 **8th International congress of Iranian Association of Periodontists, Kish/Iran.**
24. New Techniques of Fibrotomy to Prevent Orthodontic Relapses.
- Oct. 2008 **1st Congress of Iranian dental Residents, Hamadan/Iran.**
25. Changes in Arch Dimension after Hyrax Therapy.
- Jun. 2008 **10th Congress of Iranian Dental Students, Khorasgan/Iran.**
26. Maxillary Permanent Incisors and First Molars as Predictors of Canines and Premolars Widths.
- Feb. 2008 **4th International Congress of Iranian Association of OMFS, Tehran/ Iran.**
27. Orthodontic Considerations in Orthognathic Surgeries.
- Jan. 2007 **6th International Congress of Iranian Association of Orthodontists, Tehran/Iran.**
28. Assessment of Hyoid Bone Position in Orthognathic Surgeries after Mandibular Setback: BSSO vs Subcondylar.
- Nov.2007 **7th International Congress of Iranian Association of Operative Dentists, Shiraz/Iran.**
29. Importance of Operative Dentistry in Orthodontics (Case Report).
- May 2006 **8th Congress of Iranian Dental Students, Shiraz/Iran.**
30. Prevalence of Jaw Tumors in Patients Referred to Shiraz Dental School from 1983 to 1993.
- Nov. 2006 **4th International Congress of Iranian Association of Orthodontists, 2005/Shiraz-Iran.**
31. Animals in Orthodontic Researches.
- Feb. 2005 **12th International Congress of Iranian Medical Students, Tabriz/Iran.**
32. Craniofacial Fibrous Dysplasia- a Case Report.
- Feb. 2004 **7th Congress of Iranian Dental Students, Rafsenjan/Iran.**
33. Actinobacillus Actinomycetcomitans and its Effects on Periodontal Disease.