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**Research Field:** Engineering Seismology, Seismic Risk and Hazard Analysis, Earthquake and Tsunami Simulation, Numerical Methods, Earthquake Forecasting.

### EDUCATIONAL BACKGROUND

2000-2007	Ph. D. Department of Civil Engineering, University of Tehran, Tehran, IRAN. Thesis subject: "Dynamic simulation of crack propagation and its applications in earthquake simulation"
1998-2000	Master of Science. Department of Civil Engineering, University of Tehran, Tehran, IRAN.
1994-1998	Bachelor of Science. Department of Civil Engineering, University of Tehran, Tehran, IRAN.

### LANGUAGE

<b>Persian:</b>	Mother Language
<b>English</b>	Fluent (Speaking, Reading, and Writing)

### PAPERS

- 1- Zafarani H, et al., Calibration of the specific barrier model to Iranian plateau earthquakes and development of physically based attenuation relationships for Iran. *Soil Dynamics and Earthquake Engineering* Vol.28, 2008, 550–576.
- 2- Khodaverdian, A., Zafarani, H. & Rahimian, M., 2016. Seismicity Parameters and Spatially-Smoothed Seismicity Model for Iran. *Bulletin of the Seismological Society of America*, doi: 10.1785/0120150178.
- 3- Khodaverdian, A., Zafarani, H. & Rahimian, M., 2016, Using a physics-based earthquake simulator to evaluate seismic hazard in NW Iran, *Geophysical Journal International*, doi: 10.1093/gji/ggw157.
- 4- Ommi, S., Zafarani, H. & Zare, M., 2016. Aftershock decay rates in the Iranian plateau. *Pure and Applied Geophysics*, DOI 10.1007/s00024-016-1285-0.

- 5- Ommi, S., Zafarani, H. & V. B. Smirnov, 2016. Bayesian estimation of the modified Omori Law parameters for the Iranian Plateau, *Journal of Seismology*, DOI 10.1007/s10950-016-9574-8.
- 6- Khodaverdian, A., Zafarani, H. & Rahimian, M., 2015. Long term Fault slip rates, distributed deformation rates and forecast of seismicity in the Iranian Plateau. *Tectonics*, 34, 2190–2220, doi:10.1002/2014TC003796..
- 7- Zafarani, H., Ghafoori, M. & Rajaeian, P., 2015. Application of time- and magnitude-predictable model for long-term earthquake prediction in Iran. *Natural Hazards*.
- 8- Shafiee, A. H. & Zafarani, H., 2015. Model Selection for Correlating VS30 with Average Shear Wave Velocities at Lower Depths Based on the Iranian Data. *Bulletin of the Seismological Society of America*, doi: 10.1785/0120150257.
- 9- Ommi, S. & Zafarani, H., 2016. Analyses of seismicity parameters due to the August 11th, 2012, Ahar-Varzaghan earthquakes in north-western Iran. *Scientia Iranica*, In press.
- 10- Zafarani, H. & Rahimi, M., 2015. Stochastic Simulation of Strong-Motion Records from the 2012 Ahar–Varzaghan Dual Earthquakes, Northwest of Iran. *Bulletin of the Seismological Society of America*.
- 11- Mousavi, M., Zafarani, H., Rahpeyma, S. & Azarbakht, A., 2014. Test of Goodness of the NGA Ground-Motion Equations to Predict the Strong Motions of the 2012 Ahar-Varzaghan Dual Earthquakes in Northwestern Iran. *Bulletin of the Seismological Society of America* .
- 12- Ghanbari, A., Zafarani, H. & Darvishpour, A., 2013. Evaluating Seismic Response of Underground Structures Based on the Beam on Dynamic Visco-Elastic Foundation Theory. *JSEE*.
- 13- Zafarani H, et al., Analysis of Iranian strong-motion data using the specific barrier model. *Journal of Geophysics and Engineering* Vol.4, 2007, 415–428.
- 14- Zafarani, H., et al., “Recursive evaluation of time convolution integrals in the spectral boundary integral method for mode III dynamic fracture problems” *Computer and Geosciences* Vol.35, 2009, 403-408.
- 15- Zafarani, H., et al., “Clustering Analysis of the Seismic Catalog of Iran” *Computer and Geosciences* Vol.35, 2009, 475-486 .
- 16- Zafarani H, et al., Stochastic modeling of Iranian earthquakes and estimation of ground motion for future earthquakes in Greater Tehran. *Soil Dynamics and Earthquake Engineering* Vol.29, 2009, 722–741.
- 17- Hassani B, H. Zafarani , J. Farjoodi, A. Ansari, Estimation of site amplification, attenuation and source spectra of S-waves, in the East-Central Iran, *Soil Dynamics and Earthquake Engineering* Vol.31, 2011, 1397-1413.
- 18- Ansari A, Noorzad A, Zafarani H, Vahidifard H. Correction of highly noisy strong motion records using modified wavelet de-noising method. *Soil Dyn Earthquake Eng* 2010;30:1168–81.
- 19- M. R. Soghrat, N. Khaji and H. Zafarani, Simulation of strong ground motion in northern Iran using the specific barrier model, *Geophys. J. Int.* (2012) 188, 645–679

- 20- H. Zafarani, B. Hassani, A. Ansari, Estimation of earthquake parameters in the Alborz seismic zone, Iran using generalized inversion method, *Soil Dynamics and Earthquake Engineering*, Volume 42, November 2012, Pages 197–218,
- 21- H. Zafarani, H. Vahidifard, A. Ansari, Sensitivity of ground-motion scenarios to earthquake source parameters in the Tehran metropolitan area, Iran, Volume 43, December 2012, Pages 342–354,
- 22- M. Mousavi, A. Ansari, H. Zafarani & A. Azarbakht, Selection of ground motion prediction models for seismic hazard analyzes in Zagros region, Iran, *Journal of Earthquake Engineering*, Available online: 15 May 2012, DOI:10.1080/13632469.2012.685568
- 23- H. Zafarani and M. Soghrat, Simulation of Ground Motion in the Zagros Region of Iran Using the Specific Barrier Model and the Stochastic Method, *Bulletin of the Seismological Society of America*, Vol. 102, No. 5, October 2012, DOI: 10.1785/0120110315
- 24- Zafarani, H., Noorzad, A., 2005. "Generation of near-fault response spectrum for a large dam in Iran". *Hydropower and Dams* 12, Issue 4, 51-55.
- 25- H Zafarani, SMM Ghafoori, MR Adlparvar, P Rajaeian, A Hasankhani, Application of time-and magnitude-predictable model for long-term earthquake prediction in Iran, *Natural Hazards*, 2015, 78 (1), 155-178,
- 26- M Jahanandish, H Zafarani, AH Shafiee, Implementation of the square-root-impedance method to estimate site amplification in Iran using random profile generation, *Bulletin of the Seismological Society of America*, 2017, 107 (1), 456-467.
- 27- S Ommi, H Zafarani, M Zare, Aftershock decay rates in the Iranian plateau, *Pure and Applied Geophysics*, 2016, 173 (7), 2305-2324.
- 28- S Ommi, H Zafarani, Analyses of seismicity parameters of the August 11th, 2012, Ahar-Varzaghan earthquakes in north-western Iran, *Scientia Iranica. Transaction A*, 2016, Civil Engineering 23 (2), 449.
- 29- H Zafarani, A Farhadi, Testing Ground-Motion Prediction Equations against Small-to-Moderate Magnitude Data in Iran, *Bulletin of the Seismological Society of America*, 2017, 107 (2), 912-933.
- 30- H Zafarani, S Rahpeyma, M Mousavi, Regional adjustment factors for three NGA-West2 ground-motion prediction equations to be applicable in northern Iran, *Journal of Seismology*, 2017, 21 (3), 473-493
- 31- H Zafarani, MR Soghrat, A selected dataset of the Iranian strong motion records, *Natural Hazards*, 2017, 86 (3), 1307-1332
- 32- S Ommi, H Zafarani, VB Smirnov, Bayesian estimation of the Modified Omori Law parameters for the Iranian plateau, *Journal of Seismology*, 2016, 20 (3), 953-970
- 33- A Khodaverdian, H Zafarani, M Rahimian, Using a physics-based earthquake simulator to evaluate seismic hazard in NW Iran, *Geophysical Journal International*, 2016, 206 (1), 379-394
- 34- A H Shafiee, H Zafarani, M Jahanandish, Model selection for correlating VS30 with average shear-wave velocities at lower depths based on the Iranian data, *Bulletin of the Seismological Society of America*, 2016

- 35- H VahidiFard, H Zafarani, SR Sabbagh-Yazdi, MA Hadian, Seismic hazard analysis using simulated ground-motion time histories: The case of the Sefidrud dam, Iran, Soil Dynamics and Earthquake Engineering, 2017, 99, 20-34.
- 36- H Vahidifard, H Zafarani, SR Sabbagh-Yazdi, Hybrid broadband simulation of strong-motion records from the September 16, 1978, Tabas, Iran, earthquake (Mw 7.4), Natural Hazards, 2017, 87 (1), 57-81.
- 37- A Majidinejad, H Zafarani, S Vahdani, Dynamic simulation of ground motions from scenario earthquakes on the North Tehran Fault, Geophysical Journal International, 2017, 209 (1), 434-452.
- 38- M Mahood, M Mokhtari, H Zafarani, Prediction of Magnitude and Epicentral Distance from a Single Seismic Record: A Case Study of the Ahar-Varzaghan Earthquake, International Journal of Georesources and Environment-IJGE, 2016
- 39- A Khodaverdian, H Zafarani, KW Schultz, M Rahimian, Recurrence Time Distributions of Large Earthquakes in Eastern Iran, Bulletin of the Seismological Society of America 2016,

### **Selected Conference Papers**

- 1- Zafarani, H., et al., "Generation of Near-Field Ground Motions in Tehran from Future Large Earthquakes in the Alborz Seismic Zone", First European Conference on Earthquake Engineering and Seismology, 3-8 September 2006 in Geneva, Switzerland.
- 2- Zafarani, H., et al., "Stochastic finite-fault simulation of strong-motion records from Zarand (central Iran) earthquake of 2005 February 22 (Mw 6.4) ", 4th Geotechnical Earthquake Engineering Conference, 25-28 June 2007 in Athens, Greece.
- 3- Zafarani H., et al., 2005. "Generation of near-fault response spectrum of Gotvand dam by considering uncertainty in mathematical framework", 73rd Annual Meeting of ICOLD, Paper No.: 029-W2.
- 4- Zafarani, H., et al., 2005. "Recursive Evaluation of Time Convolution Integrals in the Spectral Boundary Integral Method for Mode III Dynamic Fracture Problems" BETEQ 2006, Paris, France.
- 5- Zafarani H, et al., Effects of different fault rupture scenarios on performance of tuned mass dampers for seismic response control of structures, 4th International Conference on Earthquake Engineering, 12-13 October 2006 in Taipei, Taiwan.
- 6- Zafarani H, et al., Seismic Response Analysis of Milad Tower in Tehran, Iran, under Site-Specific Simulated Ground Motions, 14th World Conference on Earthquake Engineering, 12-17 October 2008 in Beijing, China.
- 7- H. Zafarani, A Hybrid Empirical-Stochastic Method for Ground Motion Simulation; A Sample Study: The 22 February 2005 (MW 6.4) Zarand (Central Iran) Earthquake, 15th World Conference on Earthquake Engineering, September 2012 in Lisbon, Portugal
- 8- B. Hassani, H. Zafarani, J. Farjoodi, Determination of Site Amplification in East-Central Iran from Inversion of Strong-Motion Records, 15th World Conference on Earthquake Engineering, September 2012 in Lisbon, Portugal

- 9- B. Hassani, H. Zafarani, J. Farjoodi, Stochastic Finite-Fault Simulation of 22 February 2005 (Mw 6.4) Zarand Earthquake (Iran), based on Dynamic Corner Frequency, 15th World Conference on Earthquake Engineering, September 2012 in Lisbon, Portugal
- 10- H. Zafarani, M. Soghrat, A. Ansari. Estimation of site effect in Zagros on the basis of H/V spectral ratio, 9th International Conference on Civil Engineering, 8-10 May 2012 in Isfahan, Iran.