Amin Ahmadi

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# Overview

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| **Assistant Professor** | Sep 2018 – Pres. |
| **Licensed Professional Construction Engineer** | Apr 2013 – Pres. |
| **Senior Pavement Engineer** | Jan 2014 – Pres. |
| **Head of Ch&B Construction Engineering organization research group**  | Jan 2022 – Pres. |

# Field of Interested

* **Asphalt mixture technology**

# Educations

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| **Ph.D. in Civil Engineering** (*Pavement Eng.)*, *K. N. Toosi University of Technology, Tehran, Iran* | *Sep. 2012 – Sep. 2017* |
| **M.Sc. in Civil Engineering** (*Pavement Eng.)*, *Tarbiat Modares University, Tehran, Iran* | *Sep. 2009 – Jan. 2012* |
| **B.Sc. in Civil Engineering** *(Structural Eng.), Isfahan University of Technology, Isfahan, Iran* | *Sep. 2005 – Sep. 2009* |

# Language Knowledge

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| **Persian – Native** |  |
| **English** – **Proficient** *(IELTS band score 7.0)* | *Apr. 2022* |
| **Arabic** – **Basic** |  |

# Teaching Experiences

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| ***Assistant professor, Technology and Engineering Department, Shahrekord University, Shahrekord, Iran*** * *Courses Taught:*
* Fracture Mechanics
* Pavement Engineering
* Highway Geometric Design
* Road Design Project
* Transportation Engineering
* Geology for Engineers
* Construction Materials
* National Building Regulations
* *Research Interests:*
* Alternative materials for civil engineering
* Design, construction, and maintenance of pavements
* Construction materials: asphalt, aggregate, asphalt concrete
* Life-cycle assessment and analysis
* Sustainable infrastructure material
 | *2018 – Pres.* |

# Research Experience

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| **Researcher***Bituminous Materials Research Division of Road and Housing & Urban Development Research Center (BHRC), Ministry of Road & Urban Development* | Oct. 2017 – Sep. 2018 |
| **Ph.D. Research Assistant***Faculty of Civil Engineering, K. N. Toosi University of Technology (KNTU), Tehran, Iran.** Recycling of RAP and steel slag aggregates into the warm mix asphalt: A performance evaluation

To overcome shortcomings of recycling steel slag aggregates in to the asphalt mixture the simultaneous recycling of steel slag aggregates and reclaimed asphalt pavement is proposed as a solution to hinder the consumption of virgin asphalt in the mix. In order to assess this hypothesis, six types of asphalt mixture with different ratios of coarse steel slag and fine RAP were prepared and their moisture resistance, resilient modulus, dynamic creep and fatigue behavior were evaluated and statistically were compared to each other.* Evaluation of fracture resistance of asphalt mixes involving steel slag and RAP: susceptibility to aging level and freeze and thaw cycles

a set of 576 Semi-circular bending (SCB) specimens with different ratios of steel slag aggregates and reclaimed asphalt pavement with and without warm mix asphalt (WMA) additive were prepared in two aging levels and underwent up to five freeze and thaw (FT) cycles. Following, specimens were tested at 25 °C in three-point bending configuration and their critical strain energy release rate (Jc) and flexibility index (FI) were determined and statistically compared to each other.* Determination of optimal combination of RCCP mixture containing RAP and crumb rubber

This research devoted to find the proper mix design for RCCs preparing with crumb rubber and reclaimed asphalt pavement by analyzing the results of 56 set of samples with artificial neural network evolved by a genetic algorithm by considering RCC characteristics including flexural and compressive strengths as well as energy absorbency of mixes.* Influence of high content of reclaimed asphalt on the mechanical properties of cement-treated base under critical environmental conditions

Looking for a way to increase RAP recycling rate, high percentages of RAP were incorporated in cement-treated base mixtures. To assess the adequacy of mixture performance, unconfined compressive and indirect tensile strength tests of seven-days cured samples were evaluated at different temperatures and moisture contents to simulate critical condition of hot-summer and wet winter circumstances.  | Dec. 2013 – Sep. 2017 |
| **Graduate Research Assistant***Department of Civil and Environmental Engineering, Tarbiat Modares University (TMU), Tehran, Iran** The Effects of using steel slag aggregates on bituminous mixes containing limestone aggregates

This research mainly focused on the skid resistance of the surface of asphalt mixes containing steel slag aggregates. Seven types of asphalt mixes containing different proportions of steel slag were prepared in the shape of slab. The surface of all the slabs were polished using an innovative device with a rotary polisher disk and the skid resistance parameters of samples were assessed with British pendulum test as well as sand patch methods. Moreover, tests were also conducting in field on a pavement section on which a steel slag incorporated asphalt mix was constructed along with a conventional HMA and the results were monitoring for 19 months.  | *Oct. 2009 – Oct. 2011* |

# Industry and Consulting Experience

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| ***Senior Pavement Engineer at Ofogh Naghsh Pars Consulting Firm**** Chief supervisor of Sefiddasht-Shahrekord railway subgrade preparation
* Pavement rehabilitation designer of Tehran-Qom Freeway
* Pavement structure designer of several Minor and principal arterial roads
 | *Oct. 2021– present* |
| ***Senior Highway Engineer at Mana Tarh Nasim Consulting Firm**** Responsibilities
* Chief supervisor of joint reinforced concrete pavement implementation, Aiatolah Boroojerdi highway, Qom municipality, Iran
* Chief supervisor of pavement rehabilitation of Isfahan-Shiraz Freeway, Iran
* Designer and Chief supervisor of pavement cold in-place recycling of Shiraz–Sarvestan highway
* Geometric designer of Sadra-Shiraz highway
 | *Jul. 2017 – Oct. 2021.* |
| ***Senior Pavement Engineer at Rahbord Taradod Pars Consulting Engineers,*** [***https://rtpco.i/***](https://rtpco.i/)* Responsibilities
* Chief supervisor of pavement rehabilitation of Tehran district 18 arterial streets, Tehran Municipality
* Chief supervisor of pavement rehabilitation of Minodasht–Gonband main road, Golestan province, Iran
 | *Jan. 2014 – jun. 2017* |
| ***Pavement Engineer at Metra Consulting Engineers, https://en.metraconsultant.com**** Responsibilities
* Design of pavement structure and road drainage systems design of several main roads in South Khorasan province, Iran
 | *Feb. 2012 – Dec. 2013* |

# Professional Skills

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| *Computational*  | Pavement software: Pavement ME design, PinePave, KenPave, HDM4Highway Geometric design software: Civil3DNumerical modeling using FEM and FDM software: ABAQUS, SAP, MATLABDatabase management software: GIS and Python |
| *Experimental* | Asphalt laboratory tests and analysis: Indirect tensile fatigue, Dynamic creep, Indirect tensile, Marshall mix designMaterial laboratory test and analysis ([X-Ray Diffraction, X-ray fluorescence, Scanning Electron Microscope)](https://www.azom.com/article.aspx?ArticleID=4763)Expert in handling, calibration and maintenance of Servo-hydraulic and servo-pneumatic machines  |

# Certification and Memberships

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| Peer Reviewer, International Journal of Pavement Engineering, Taylor & Francis | 2018 – Pres. |
| Peer Reviewer, KSCE Journal of Civil Engineering, Springer Verlag | 2018 – Pres. |
| Peer Reviewer, Construction and Building Materials, Elsevier | 2017 – Pres. |
| Peer Reviewer, Word journal of Engineering, Emerald Group Publishing LTD | 2017 – Pres. |
| Member of Society of Civil Engineers (ASCE) | 2017 – Pres. |
| Member of Iran's National Elites Foundation (INEF) | 2017 – Pres. |
| Member of Pavement Engineering Association of Iran ([***http://www.peai.ir***](http://www.peai.ir)) | 2014 – Pres. |
| Member of Iranian Construction Engineers Organization, Ch&B Province, Iran.  | 2014 – Pres. |
| Licensed Professional Engineer (PE) in Iran, (Design, Supervision and Executive parts) | 2013 – Pres. |

# Honors and Awards

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| Winning the second place in the country's physical fitness and wrestling competitions | 2009 |
| **Graduate Student Certificate of Excellence**Faculty of Civil Engineering, K.N. Toosi University of Technology (KNTU), Tehran, Iran | 2017 |
| Ranked 2 in Iranian Nationwide PhD Entrance Examination for graduate studies | 2012 |
| **Graduate Student Certificate of Excellence**Department of Civil and Environmental Engineering, Tarbiat Modares University (TMU), Tehran, Iran | 2011 |
| Ranked top 1% in Iranian Nationwide University Entrance Examination for graduate studies in Civil Engineering with over 20,000 test takers | 2009 |
| Ranked top 1% in Iranian Nationwide University Entrance Examination for undergraduate studies with over 400,000 test takers in Mathematics and Physics group | 2005 |

# Publications

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| 1. | Amin Ahmadi, Mohammad K. Ghogheri, Mostafa Adresi, Ershad Amoosoltani. “Laboratory evaluation of roller compacted concrete containing RAP” Advances in Concrete Construction, 2020; 6: 489–498. https://doi.org/10.12989/acc.2020.10.6.489. |
| 2. | 1. Fakhri Mansour, Amin Ahmadi. "Recycling of RAP and steel slag aggregates into the warm mix asphalt: A performance evaluation" Construction and Building Materials 2017; 147: 630–638. <http://dx.doi.org/10.1016/j.conbuildmat.2017.04.117>.
 |
| 3. | Fakhri Mansour, Amin Ahmadi. "Evaluation of fracture resistance of asphalt mixes involving steel slag and RAP: Susceptibility to aging level and freeze and thaw cycles" Construction and Building Materials 2017; 157: 748–756. <https://doi.org/10.1016/j.conbuildmat.2017.09.116>. |
| 4. | * Ershad Amoosoltani, Mansour Fakhri, Mona Farhani, **Amin Ahmadi** “Determining optimal combination of RCCP mixture containing RAP and crumb rubber using hybrid ANN-GA method considering energy absorbency approach” Canadian Journal of Civil Engineering 2017; 44(11): 945–955, <https://doi.org/10.1139/cjce-2017-0124>.
 |
| 5. | * Mostafa Adresi, Abolfazl khishdari, Amin Ahmadi, Hamed Rooholamini “Influence of high content of reclaimed asphalt on the mechanical properties of cement-treated base” International Journal of Pavement Engineering 2017; 1–8, <http://dx.doi.org/10.1080/10298436.2017.1388508>.
 |
|  | **Refereed Journal Articles** |
| 1. | Mansour Fakhri, Amin Ahmadi, Reza Alinasab, Mohammad Karimi Gogheri. “Experimental Evaluation of Physical and Mechanical Performance of Asphalt Mixes Modified by Steel Slag Aggregates” Journal of Transportation Research, 2017; 14 (2): 239–262. (In Persian) [http://www.trijournal.ir/article\_51001\_en.html](http://www.trijournal.ir/article_51001_en.html%20)  |
| 2. | Amin Ahmadi, Manour Fakhri, Alireza Ameli, Mostafa Adresi. “Evaluation of long-term behavior of warm mix asphalt containing steel slag aggregates and reclaimed asphalt pavement” (in Persian), Journal of Transportation Research, 2017; 14 (3): 23–28, (In Persian) <http://www.trijournal.ir/article_53707_en.html> |
| 3. | Amin Ahmadi, Mansour Fakhri, Alireza Ameli. “The Comparison of static and dynamic criteria in characterizing rutting properties of warm mix asphalt containing recycled materials” Journal of Transportation Research, 2017; 14 (4): 129–145, (In Persian), <http://www.trijournal.ir/article_54333_en.html> |
| 4. | Mostafa Adressi, Amin Ahmadi, Mohsen Ahmadi, Masoud Forsat, Mohammad Taghipour “Methodology of damage detection and weight in motion performance under traffic loading based on self-sensing concrete” Journal of Transportation Engineering, 2018; 9(2): 139–154, (In Persian) <http://jte.sinaweb.net/article_48619_en.html>. |
| 5. | Reza Alinasab, Amir Kavousi, Amin Ahmadi “Evaluation of lime fillers effects on reduction of moisture and freeze damage by indirect tensile strength and compressive strength tests” (in Persian), Modares Civil Engineering journal, 2014; 14(20): 77–85, (In Persian) <http://mcej.modares.ac.ir/article-16-9681-en.html>. |
| 6. | Mohammad Karimi Gogheri, Abolfazl Hassani, Amin Ahmadi, Hamzeh Arab Ameri. “Laboratory Investigation About Utilization of Recycled Asphalt Pavements as a Substitute for Aggregates in Roller Compacted Concrete Pavements” Journal of Transportation Engineering 2011; 3(1): 69–79, (In Persian) <http://jte.sinaweb.net/article_1788_en.html>. |
| 7. | Sayyed Ali Hosseini, Amin Ahmadi, Alireza Ameli “Evaluation of Moisture-induced Damages and Rutting Resistance of Glass Fiber Modified Mix Asphalt” Journal of Transportation Research, in Press, Accepted Manuscript, Winter 2019; 15(57): 247–261, (In Persian), https://www.sid.ir/en/Journal/ViewPaper.aspx?ID=743453 |
|  | **Conference Proceedings** |
|  | Amin Ahmadi, Shamsodin Fani, Amir Abotalebi “Assessment of Present Net value of construction and maintenance of Different Pavement options for Haram-Haram Highway” 12th Bitumen, Asphalt & Machinery National Conference & Exhibition, Roads, Housing & Urban Development Research Center, October 2020, Tehran, Iran,  |
| 1. | Ali Ghalesefidi, Amin Ahmadi, Reza Kamgar “Dynamic response of the controlled structure with tuned mass damper subjected to the seismic loading” National Conference on Architecture, Civil Engineering, Urban Development and Horizons of Islamic Art in the Second Step Statement of the Revolution, Tabriz Islamic Art University / 26 November. 2020 |
| 2. | Abdolrasool Ahmadi, Mohammad Bostan, Amin Ahmadi “Optimal design of the water transmission lines in steady and unsteady flow conditions with genetic algorithm” 6th national conference on applied research in civil engineering, architecture and urban management, 27-28 Feb. K. N. Toosi University of Technology, Tehran, Iran |
| 3. | Abdolrahman Ahmadi, Mohammad Bostan, Amin Ahmadi “Optimal design of shock absorber with genetic algorithm to control the effects of water hammer on gravity and pumped water distribution networks” 6th national conference on applied research in civil engineering, architecture and urban management, 27-28 Feb. K. N. Toosi University of Technology, Tehran, Iran |
| 4. | Abdolrahman Ahmadi, Amin Ahmadi, Mohammad Reza Javaheri-tafti. “Investigation of the effects of substituting steel slag aggregates with natural aggregates on physical and mechanical properties of portland cement concrete” 2th national conference on applied research and new technologies in civil engineering, architecture and urbanism, February 22, 2018 Taft University, Yazd, Iran |
| 5. | Amin Ahmadi, Mansour Fakhri, Mohammad Bostan. “Evaluation of concurrent recycling steel slag aggregates and reclaimed asphalt pavement on physical and mechanical properties of warm mix asphalt” 2th International of conference on Civil Engineering, Architecture and crisis management, May 25, 2017 Kharazmi university, Tehran, Iran |
| 6. | Omid Noori, Amin Ahmadi, Mohammad Bostan, “Nonlinear Programming Model for optimum design and operation of groundwater resources” 2th International of conference on Civil Engineering, Architecture and crisis management, May 25, 2017 Kharazmi university, Tehran, Iran |
| 7. | Mohammad Bostan, Amin Ahmadi, Omid Noori “Optimum design of shock damper with GA for controlling water hammer effects caused by sudden closure of valve” 2th International of conference on Civil Engineering, Architecture and crisis management, May 25, 2017 Kharazmi university, Tehran, Iran |
| 8. | Amir Kavousi, Amin Ahmadi, Reza Alinasab “Evaluation of mechanical behavior and skid resistance of asphalt mixtures containing steel slag” 9th International Congress on Civil Engineering, May 8–10, 2012 Isfahan University of Technology, Isfahan, Iran |
| 9. | Amir Kavousi, Reza Alinasab, Amin Ahmadi. “Evaluation of the effects of two different lime fillers in reducing of stripping damages in asphalt mixes” 9th International Congress on Civil Engineering, May 8–10, 2012 Isfahan University of Technology, Isfahan, Iran |
| 10. | Amin Ahmadi, Amir Kavoussi, Morteza Jalili Qazizadeh, Reza Alinasab. “ Evaluation of Skid Resistance of Asphalt Mixtures Containing Electric Arc Furnace (EAF) Slag and Recommendation of its Optimum Content” 3rd International Traffic Accident Conference, May 15-17, 2012 College of Engineering, University of Tehran, Tehran, Iran |
| 11. | Amir Kavousi, Amin Ahmadi, Reza Alinasab “Evaluation of mechanical behavior and skid resistance of asphalt mixtures containing steel slag” 9th International Congress on Civil Engineering, May 8–10, 2012 Isfahan University of Technology, Isfahan, Iran |