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Dr. Hamad Ibrahim Al-Abdul Wahhab is a Professor of Civil and Environmental Engineering Department at King Fahd University of Petroleum & Minerals (KFUPM). He received his Ph.D. in Civil Engineering (Major - Transportation) from the Oregon State University, USA in 1985. He obtained his M.Sc. (Transportation Engineering) and B.Sc. (Civil Engineering) from the University of Petroleum & Minerals, Dhahran, Saudi Arabia in 1981 and 1979, respectively. Dr. Al-Abdul Wahhab has a teaching and research experience for more than 35 years. His research interests include Highway and airport materials (including soils), design; Construction specification, evaluation, maintenance, asset management; Quality control; Traffic Engineering, operations and facility planning.

He has 64 publications in refereed journals and 72 publications in conference proceedings. He has published over 86 technical reports and published **eight US patents**. He has published a textbook in Arabic, titled "Pavement Management System for Highways & Airports". Dr. Abdul Wahhab has chaired seven PhD theses, participated in 3 PhD committees, chaired 22-Ms theses and participated in 10-Ms thesis committee. He has coordinated over 26-short courses and participated in nine other courses.

Dr. Al-Abdul Wahhab worked as the Principal Investigator and Co-Investigator in as many as 41 funded research projects. Most of the research projects he completed were based on the Pavement management systems, evaluation of concrete and asphalt pavements and Study of pavement materials performance and durability in local environment including asphalt specifications and polymer modifications. He worked as consultant on several national projects and for number of governmental and private sectors agencies. He received the "best research award-1993". He also received the "best research award-1420H" Prince Muhammad Bin Fahd Research Award, among several other recognitions including Best funded KACST project award. For more details, you can visit his web page:

<http://faculty.kfupm.edu.sa/CE/hawahab>

1-Interest:

Highway and airport materials (including soils), design, Construction specification, evaluation, maintenance, management, Quality control, Traffic Engineering, operations and facility planning.

2-Scientific Achievements:

1. Total Journal Publications: 64
2. Total conference Proceedings publications: 72
3. Total Submitted Reports: 86
4. Total Books and Manuals: 3
5. Total Funded Projects: 46
6. MS. Supervision: 32
7. Ph.D. Supervision: 9
8. Patents: 20-Submitted and 8-Granted

3-Selected Journal Publications (Total Journal Publications: 64):

1. Mohammed H. Al-Mehthel, Saleh H. Al Idi, Hamad I. Al-Abdul Wahhab, Ibelwaleed A. Hussein, (2016), "Foamed sulfur asphalts for pavement recycling and soil stabilization", [US Patent US9346956](#)
2. Mohammed H. Al-Mehthel, Hamad I. Al-Abdul Wahhab, Saleh H. Al Idi, Ibelwaleed A. Hussein, (2016), "Sulfur asphalt in roofing, damp-proofing and water proofing", [US Patent US9309441](#)
3. Mohammed H. Al-Mehthel, Hamad I. Al-Abdul Wahhab, Saleh H. Al Idi, Ibelwaleed A. Hussein, (2016), "Sulfur extended asphalt modified with crumb rubber for paving and roofing", [US Patent US9181435](#)
4. Dalhat M. A., Al Abdul Wahhab H. I., 2016, Cement-less and Asphalt-less Concretes Bounded by Recycled Plastic Construction & Building Materials. Paper accepted for publication in the journal of Construction & Building Materials, CONBUILDMAT-D-15-04156R1.
5. Ibelwaleed A. Hussein, Hamad I. Al-Abdul Wahhab, Mohammed A. Suleiman, (2016), "Sulfur Modified Polyvinyl Acetate (PVAc)" [US Patent No. US9243167](#), Jan. 2, 2016.
6. Mohammed H. Al-Mehthel, Hamad I. Al-Abdul Wahhab, Saleh H. Al Idi, Ibelwaleed A. Hussein, (2016), "Heavy oil ash in roofing, damp-proofing, and water proofing applications", [US Patent No.9249304, Feb, 2, 2016](#)
7. Hamad I. Al-Abdul Wahhab and Gamil M. Abdullah, (2015). "Prediction of Permanent Deformation of Foamed and Emulsified Sulfur Asphalt Soils Mixes", Journal of Engineering Research (TJER). (Accepted for publication)
8. Dalhat M. A., Al Abdul Wahhab H. I., 2015, Performance of Recycled Plastic Waste Modified Asphalt Binder in Saudi Arabia. International Journal of Pavement Engineering. (Accepted for publication)
9. Ibelwaleed A. Hussein, Hamad I. Al-Abdul Wahhab, Junaid S. Akhtar, (2015), "Sulfur Extended Polymer for use in Asphalt Binder and Road Maintenance" [US Patent No. 9012542](#).
10. Gamil M. Abdullah and Hamad I. Al-Abdul Wahhab, (2015). "Evaluation of Foamed Sulfur Asphalt Stabilized Soils for Road Applications", Construction and Building Materials 88 (2015) 149–158.
11. Hamad I. Al-Abdul Wahhab Ibelwaleed A. Hussein M. Anwar Parvez, Reyad A. Shawabkeh, (2014). "Use of Modified Oil Fly Ash to Enhance Asphalt Concrete Performance", accepted for publication at Materials and Structures Journal, August 2014, (MAAS-D-14-00139R1)
12. Ibelwaleed A. Hussein, Mohammed H. Al-Mehthel, Hamad I. Al-Abdul Wahhab, Saleh H. Al Idi, Mohammed A. Suleiman. 2014,"Asphalt Compositions with Sulfur Modified Polyvinyl Acetate (PVAc)" [US Patent No. 8,721,215](#).
13. Mohammed H. Al-Mehthel, Hamad I. Al-Abdul Wahhab, Ibelwaleed A. Hussein , (2013). "Utilization of Heavy Oil Fly Ash to Improve Asphalt Binder and Asphalt Concrete Performance. [US patent # 8444761](#). May 21, 2013
14. H. I. Al-Abdul Wahhab, M. A. Dalhat and, (2014). "Oil-Sludge Extended Asphalt Mastic Filled with Heavy Oil Fly Ash and Cement Waste for Waterproofing ", Paper accepted for publication at The Journal of Engineering Research, Sultan Qaboos University, Muscat - Sultanate of Oman, May, 5, 2014.
15. M. Anwar Parvez, Mohammed Al-Mehthel, Hamad I. Al-Abdul Wahhab, Ibelwaleed A. Hussein, "Utilization of sulfur and crumb rubber in asphalt modification", J. of Applied Polymer Science, 2014 (40046).
16. M. A. Dalhat and H. I. Al-Abdul Wahhab, (2013). "Sulfur Extended Heavy Oil Fly Ash and Cement Waste Asphalt mastic for Roofing and Waterproofing". Accepted for publication in Materials and Structures Journal, August.
17. Al-Abdul Wahhab, H.I., (2012). "Effect of Modifiers on Fatigue Behavior of Asphalt Concrete Mixes in the Gulf", International Journal of Pavement Research and Technology (IJPR), Vol.5 No.5 Sep. 2012.
18. Al-Abdul Wahhab, H.I., Baig M. G., Mahmoud I. A., and Kattan H. M. , (2011). "Study of Road Bases Construction in Saudi Arabia Using Foam Asphalt ", Construction and Building Materials , Sept. 2011, pp. 113-121
19. Reyad Shawabkeh; Muhammad J. Khan; Abdulhadi A. Al-Juhani; Hamad I. Al-Abdul Wahhab; Ibelwaleed A. Hussein, (2011). "Enhancement of Surface Properties of Oil Fly Ash by Chemical Treatment" , Applied Surface Science, Volume 258, Issue 5, 15 December 2011, Pages 1643–1650

20. Husain A Ibelwaleed. Al-Abdul Wahhab,H., and Iqbal H., Mohammad, (2006). “Influence of Polymer Type and Structure on Polymer Modified Asphalt Concrete Mix”, Canadian Journal of Chemical Engineering, Volume 84, Issue 4, August 2006, Pages 480-487
21. N.T. Ratrou, H. Al-Abdul Wahhab and K. Al-Ofi, (2008). “Reasons for Tire Explosion and Methods to Reduce Its Associated Traffic Accidents,” Journal of Security Research, August 2008, pp. 141-194 Sarfraz H. Abbasi, Abdulhadi A. Al-Juhani, Anwar
22. Husain A Ibelwaleed., Iqbal H., Mohammad, and Al-Abdul Wahhab,H, (2006). “Rheological Investigation of the Influence of Acrylate Polymers on the Modification of Asphalt”, Journal of Applied Polymer Science., Volume 102, Issue 4, 15 November 2006, Pages 3446-3456
23. Mohammad H. Iqbal, Ibelwaleed A. Hussein, Hamad I. Al-Abdul Wahhab, and Mohamed B. Amin, (2006), “Rheological investigation of the influence of acrylate polymers on the modification of asphalt”, Applied Polymer Science, Volume 102, Issue 4, Pages 3446–3456.
24. Husain A Ibelwaleed., Iqbal H., Mohammad, and Al-Abdul Wahhab,H., (2005). “Influence of Mw of LDPE and Vinyl Acetate Content on the rheology of Polymer Modified Asphalt”, Rheologica Acta journal, Volume 45, Number 1, September, 2005, pp 92-104.
25. Qasrawi Hisham Y., Asi, Ibrahim M., Al-Abdul Wahhab, H.I., (2005). " Proportioning RCCP mixes under hot weather conditions for a specified tensile strength", Cement and Concrete Research 35 (2005) 267–276
26. Al-Abdul Wahhab, H.I., Asi, I.M., Ali, S.A., Al-Swailmi, S. and Al-Nour, A., (2004). “Stripping on Saudi Arabian Roads – Prediction and Prevention” Journal of Engineering Research Sultan Qaboos University , vol. 1, No.1, pp 29-38, January 2004.
27. Al-Abdul Wahhab, and I. Abaker, H.I., (2004). “Performance Modification of Local Asphalts Using Local Polymers”, The Journal of Engineering Research Sultan Qaboos University , vol. 1, No.1, pp 19-28, January 2004
28. Nedal T. Ratrou, Syed Anwar Basha, Hamad I. Al-Abdul Wahhab, and Khalaf A. Al-Ofi, (2004). “Characteristics of Imported Tires in Saudi Arabia –A Case Study” The Journal of Engineering Research Sultan Qaboos University, vol. 1, No.1, pp1-6, January 2004.
29. Al-Abdul Wahhab, H., Ramadhan, R., Asi, I. and Yazdani, J., (2002). “Development of Pavement Management Systems for Dammam Municipality Roads - Saudi Arabia”, paper accepted for presentation at Transportation Research Board Annual Meeting, January 2002
30. Al-Abdul Wahhab, H., Asi, I. and Ramadhan, R., (2001). “Modeling Resilient Modulus and Temperature Correction Factors for Saudi Roads”, ASCE Material Journal, Vol. 13, No. 4, July 2001, pp. 298-305
31. Al-Abdul Wahhab, H.I., Fatani, M., Al-Dubabe, I., Bubshait, A. and Noureldin, A.S., (1999). “Design and Maintenance Criteria for Saudi Asphalt Concrete Mixes”, Building and Environment Journal, Vol. 34, 1999, pp. 623-631.
32. Ali, M., Al-Abdul Wahhab, H., Asi, I. and Al-Dubabe, I., (1999). “Characterization of Polymer Modified Gulf Asphalts”, Petroleum Science and Technology, Vol. 17, Numbers 1,2, 1999, pp. 125-146
33. Al-Dubabe, I.A., Al-Abdul Wahhab, H.I., Asi, I.M. and Ali, M.F., (1998). “Polymer Modification of Arab Asphalt”, ASCE Material Journal, Vol. 10, No. 3, August 1998, pp. 161-167.
34. Al-Abdul Wahhab, H.I., Asi, I.M., Al-Dubabe, I.A. and Ali, M.F., (1997). “Development of Performance-Based Bitumen Specifications for the Gulf Countries”, Construction and Building Materials Journal, Vol. 11, No. 1, 1997, pp. 15-22

#### 4-Books and Manuals:

1. Al-Swailmi, S. and Al-Abdul Wahhab, H., “Pavement Management System for Highways & Airports”, Textbook in Arabic, June 2001, 550 pp.
2. Participated in the development of CE 303 Structural Materials Laboratory Manual, 2003
3. Pavement Materials Laboratory manual for CE 676, July 2005

### 5-Special Recognition

- Best Research Award – 1993 for project “King Fahd International Airport Portland Cement Concrete Pavements – Pavement Design and Evaluation.”
- Best Research Award for 1420H, Prince Muhammad Bin Fahad Research Award.
- Distinction Certificate for participation in the Best Short Course 1419H.
- Best short KFUPM-course award for the year 2002-2003.
- KACST third recognition certificate award for the research " Adaptation of SHRP Performance Based Asphalt Specifications to the Gulf Countries, (AR 14 60)"
- KFUPM recognition for five awarded US patents.
- KFUPM recognition for distinguished university service.

### 6- Consulting

Consultation and advising was offered to the local agencies in the area of pavement technology, asphalt specifications, material evaluation, asphalt concrete mix design and construction, pavement/Transportation asset management, pavement structural design, recycling, Highway and Airport engineering. Works in this area were extended to:

- Ministry of Municipal and Rural Affairs (MOMRA)
- Eastern Provence Municipality
- Riyadh Municipality
- Madinah Municipality
- Riyadh Higher Authority
- Saudi Aramco
- SABIC
- Royal Commission for Jubail and Yanbu (RCJY)
- Ministry of Transport (MOT)
- Number of consulting engineering offices.

### 7-Selected Research Projects (Total Projects: 46):

1. Evaluation of Permanent Deformation of Asphalt Concrete Pavements in Saudi Arabia. KACST, Fatani, M. (PI); Balghonaim, F; Al-Abdul Wahhab, H.; Bubshait, A.; Al-Dhubeeb, I. (July 26, 1987).
2. Programming Pavement Maintenance Management for Al-Jubail Industrial City. Jubail Industrial City, Arora, M. (PM); Al-Abdul Wahhab, H. (September 1987).
3. King Fahd International Airport Portland cement Concrete Pavements - Pavement Design and Evaluation, Arora, M. (PM); Al-Abdul Wahhab, H.; Basunbul, I.; Bubshait, A.; Al-Tayyib, A.
4. Roads & Airfield Evaluation Survey for King Abdulaziz Airbase, Dhahran, Al-Tayyib, A. (P.I.); Arora, M.; Al-Abdul Wahhab, H.; Basunbul, I.
5. Roads & Airfield Evaluation Survey for King Faisal Airbase, Tabouk, Al-Tayyib, A. (P.I.); Arora, M.; Al-Abdul Wahhab, H.; Basunbul, I.
6. Adaptation of SHRP Performance Based Asphalt Specifications to the Gulf Countries. KACST (AR-14-60), Al-Abdul Wahhab, H. (PI); Ali, M.; Asi, I; Al-Dubabe, I. (Jan, 1993).
7. Identification, Evaluation and Improvement of Eastern Saudi Soils for Constructional Purposes. KACST (AR-14-61), Co-I, Aiban, S. (PI); Al-Abdul Wahhab, H.; Al-Amoudi, O. (March 1994).
8. Evaluation of Concrete and Asphalt Pavements' Condition of Airfield and Road Networks at King Fahd Airbase, Taif. Al-Abdul Wahhab, H. (P.I.); Al-Ahmadi, H.; Bubshait, A. (Oct 1994)
9. Evaluation of Concrete and Asphalt Pavements' Condition of Airfield and Road Networks at King Khalid Airbase, Khamis Mushayt. Al-Abdul Wahhab, H. (P.I.); Al-Ahmadi, H. (Dec 1994),

10. Preventive Maintenance Procedures for RSAF Airbases. Al-Abdul Wahhab, H. (P.I.); Al-Ahmadi, H. (Feb. 1996)
11. Utilization of Steel Slag Aggregate in Road Construction, Hackett MultiServ-Saudi Arabia Ltd, Aiban, S. and Al-Abdul Wahhab, H.
12. Stripping on Saudi Arabian Roads – Causes, Prediction and Prevention, KACST AR-17-39, Al-Abdul Wahhab, H. et al., (PI, April 1998).
13. Development of Truck Loading for Short Span Highway Bridges in Saudi Arabia, Al-Abdul Wahhab, H and Azad, A. (PI). Nov. 1994
14. Development of Maintenance Management System for Riyadh Street Network, Consultant. Al-Swailmi, S. (PI).
15. Prequalification of Materials and Evaluation of Deterioration of Roads, project sponsored by Dammam Municipality and Its Contractors. (P.I.)
16. Tire Failure – Reasons and Consequences. KACST, Co-I.
17. Polymer Modification of Local Asphalt Using SABIC Polymers, project sponsored by SABIC, (PI).
18. Testing of Concrete Structural Units (Jodran), project sponsored by JODRAN Construction Co. R.I. PN CE2208, (Co-I).
19. Investigation of Cracking in Ground Beams in Building 5060 for Al-Yamamah Hunter Project, Jubail, project sponsored by Royal Saudi Naval Forces. R.I. PN CE2207, (Co-I).
20. Evaluation of Sulfur-Asphalt and Sulfur Concrete Technology for Local Applications, Saudi Aramco, 2002, (PI).
21. A Study to Improve Sabc Polymers for the Performance Modification of Saudi-Asphalt Binders, Saudi Basic Industries Corporation (SABIC), 2003, (PI).
22. Evaluation of the potential of using sulfur asphalt in Saudi roads, Saudi Aramco, August 2004, (PI).
23. Accelerated Testing Comparison of SAES-Q006 Foam Asphalt and Aggregate/Hot Asphalt Pavement Sections, Saudi Aramco, April 2005, (PI).
24. Effect of Modifiers on Fatigue Behavior of Saudi Asphalt Concrete Mixes; KACST September 2005, (PI).
25. Development of Pavement Management System for Al-Madinah Al-Monawarah, Sept 2004, (Co.-I).
26. Establishment of Al-Thuraya Private College in Jeddah, July 2005. Co-I.
27. Effect of Modifiers on Fatigue Behavior of Saudi Asphalt Concrete Mixes, 2006 (KACST), (PI)
28. Quality Assurance Testing of Asphalt Binders, Al-Mardoof EST. for Contracting, Madina Munawara, Saudi Arabia (PI).
29. Sulfur Modification of Polymers for use in Asphalt Binders, Saudi Aramco, Aug. 2007. (Co-I)
30. Evaluation of Sulfur Asphalt Concrete Mixes and Sulfur Asphalt Test Roads, Saudi Aramco, July 2005-2010. (PI)
31. Utilization of Heavy Oil Fly Ash to Improve Asphalt Binder, Sulfur Asphalt and Asphalt Concrete Performance, Saudi Aramco, July 2008. (PI)
32. Design, Testing and Quality Assurance of Highway Materials, Eastern Province Municipality, Dec. 2008. (PI)
33. Sulfur Based Polymer Development – Phase II, Saudi Aramco, June 2009. (Co-I)
34. Design, Testing and Quality Assurance of Highway Materials; Eastern Province Municipality, Nov. 2008.
35. Testing And Evaluation Of Highway Materials, Abdulrahman Alnour Engineering Consulting, Nov. , 2009.( PI)
36. Al-Abdul Wahhab, et.al, 2010, “Treatment of Waste Oil Fly Ash for Improvement of Saudi Asphalt Binder and Asphalt Concrete Performance”, (KACST), (PI)
37. Roads and Modern Traffic Control Systems – Current Condition – National Strategy for Traffic Safety , 2010 (KACST), (CO-I)
38. Al-Abdul Wahhab, et.al,2011, “Rheology Modifiers for improved Flexibility of Sulfur Asphalt”, Saudi Aramco for Possible Funding, March , ( Co-I)

39. Al-Abdul Wahhab, et.al, 2011, "Stabilization of Local Soils with Foamed and Emulsified Sulfur Asphalt", Saudi Aramco, Jan. (PI)
40. Al-Abdul Wahhab, et.al, 2011, "Sulfur Extended Asphalt and Sulfur Based Asphalt Modifiers for Roofing", Saudi Aramco, Jan. (PI)
41. Al-Abdul Wahhab, et.al, 2011, "Utilization of Tank Bottom Oil Sludge and Tank Bottom Oil Sludge Sand", Saudi Aramco, Jan 2011. (PI)
42. Al-Abdul Wahhab, et.al, 201, "Performance Grading Evaluation of Saudi asphalt Modified with Honeywell Titan™ polymers", Honeywell International, Inc., March. , 2013, (PI)
43. M. BinHusain, H. Al-Abdul Wahhab, et.al, 2014. "Structural Pavements Design For Saudi Arabian Roads" Kacst, March 2014, (CO.I.)
44. Al-Abdul Wahhab, et.al, 2014, "Effect of Riyadh refinery bitumen variability on the loadings of Honeywell Titan™ polymers" Honeywell International, Inc., March. , 2014, (PI)
45. Al-Abdul Wahhab, et.al, 2013. "Design and Architecture of a Highway Asset Management Framework and System for the Kingdom of Saudi Arabia" NTSIP, (P.I.)
46. Al-Abdul Wahhab, et.al, 2014. "Eco-friendly Recycling of Domestic and Industrial Plastic Waste for Local Asphalt Concrete" NTSIP, (P.I.)