Dr. Mohamed Zakaria Abdelhamid

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Faculty of Engineering, Aswan University

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Personal Data:

Date of Birth: 13th Septmber 1977
Nationality: Egyptian
Sex: Male
Marital Status: Married

Education:

B.Sc. "Civil Engineering" with an accumulative average grade of "Distinction" with Honor degree, Aswan Faculty of Engineering, South Valley University, awarded in 2000.

M.Sc. "Civil Engineering", Aswan Faculty of Engineering, South Valley University, awarded in 2005.
Thesis title: "**Analysis of Prestressed Concrete Deep Beams.**"

Ph.D. Built Environment Division, Graduate School of Engineering, Hokkaido University, awarded in 2010.
Thesis title: "**Shear Cracking Behavior in Concrete Beams with Shear Reinforcement**."

Academic Qualification:

Teaching Assistant: 2000-2005, Civil Engineering Department,
Faculty of Engineering,
South Valley University,
Aswan, Egypt

Teaching Associate: 2005-2010, Civil Engineering Department,
Faculty of Engineering,
South Valley University,
Aswan, Egypt

Assistant Professor: 2010-2017, Civil Engineering Department,
Faculty of Engineering,
Aswan University,
Aswan, Egypt

Associate Professor: 2017-2023, Civil Engineering Department,
Faculty of Engineering,
Aswan University,
Aswan, Egypt

Professor: 2023-present, Civil Engineering Department,
Faculty of Engineering,
Aswan University,
Aswan, Egypt

Postdoctoral fellow: 2011-2014, Arch. & Civil Engineering Department,
Muroran Institute of Technology,
Hokkaido, Japan

Academic and Scientific Experience:

- **October 2000 – March 2006: Civil Engineering Department, Faculty of Engineering, South Valley University, Aswan, Egypt**
  Working as a Teaching and Research Assistant with the main duty of teaching undergraduate students in Civil Engineering subjects.

- **April 2006 – June 2010: Division of Built Environment, Graduate School of Engineering, Hokkaido University, Sapporo, Japan**
  Investigating the problem of cracking and crack control in reinforced concrete and prestressed concrete members, which adversely affects structural performance in various ways, such as serviceability and durability requirements. This research is a joint project between Hokkaido University (Japan) and Dalian University of Technology (P.R. China). The purposes of the study were to clarify the shear cracking behavior in reinforced concrete and prestressed concrete beams with shear reinforcements based on results of experimental investigations, and also to develop a rational prediction method for shear crack spacing and opening displacement.

- **October 2010 – present: Civil Engineering Department, Faculty of Engineering, Aswan University, Aswan, Egypt**
  - Teaching undergraduate and post-graduate students in the Civil Engineering Department.
  - Promoting for structural Engineering group in the Civil Engineering Department.

- **2011 – 2014: Arch. And Civil Engineering Department, Muroran Institute of Technology, Hokkaido, Japan**

- Visiting researcher with the main target to apply green technology by using eco-friendly cementitious materials in general concrete buildings
- Conduct research work and publish Journal and conference papers.

- **Memberships and Professional Activities:**

- Japan Concrete Institute membership.
- Japan Society of Civil Engineers membership.
- Egyptian Engineering Syndicate membership.
- Designing of various concrete projects and cooperating with several consulting engineering offices.

Academic and Administrative Positions

- Vice Dean for Education and Student Affairs
  Faculty of Engineering, Aswan University
- Director, Engineering Studies and Consultancy Center
  Faculty of Engineering, Aswan University
- Engineering Consultant to the President of Aswan University for Engineering and Development Projects

Administrative and Consultancy Experience

As Director of the Engineering Studies and Consultancy Center, Prof. Zakaria supervises engineering studies, structural design reviews, and consultancy services for national and regional development projects. In his role as Engineering Consultant to the President of Aswan University, he provides technical and strategic guidance for major university construction and infrastructure projects. As Vice Dean for Education and Student Affairs, he actively contributes to academic development, curriculum enhancement, and student services.

Grants and Awards:

1- **The role model engineer award from the Sub-Syndicate of Engineers,** 2023
2- **The scientific research award from Aswan University,** 2021, 2023
3- **Japan Society for Promotion of Science (JSPS) fellowship**, 2013.
4- **JSCE Yoshida Prize** (Biggest award in Japan in the civil Engineering field) for the best Journal paper from **the Japan Society of Civil Engineers (JSCE)**, 2012.
5- **Annual Intensive Paper Award** for excellent paper presentation at **Japan Concrete Institute (JCI)** annual conference, Saitama, 2010.
6- **One of Three Outstanding Papers Award** selected by the Advisory Board of the **Journal of Advanced Concrete Technology**, **Japan Concrete Institute**, 2009.
7- **The Japanese Government (MEXT) Scholarship** (2006 to 2009).
8- **Best Undergraduate Student Award**, Aswan Faculty of Engineering, **South Valley University**, Egypt (1996 to 2000).
9- **Egyptian Government Award** for distinguished undergraduate students, **Ministry of Higher Education**, Egypt, 1995.

Research Projects:

- Japan Society for Promotion of Science (JSPS) overseas standard research project for foreign researchers - Muroran Institute of Technology, Japan 2013.
- Scientific cooperation between Japan, Korea and China – Improvement of concrete for long life span structure – Muroran Institute of Technology, Japan 2013.

List of Publications:

- **Mohamed Zakaria**, T Ueda, Z Wu, and L Meng, (2009) "Experimental investigation on shear cracking behavior in reinforced concrete beams with shear reinforcement", Journal of Advanced Concrete Technology 7 (1), pp79-96.
- **Mohamed Zakaria**, T Ueda, Z Wu, and M Liang, (2010), "Evaluation Of Shear Crack Spacing Prediction Models In Reinforced Concrete Beams", Japan Concrete Institute, JCI Annual Convention, srm 21 (10)
- **Mohamed Zakaria**, T Ueda, and Z Wu, (2011), "Evaluating And Proposing Prediction Models Of Shear Crack Width In Concrete Beams", JSCE Journal, 67 (2), pp.245-263
- Y. Kishimoto, Y. Hama, and **Mohamed Zakaria**, (April 2012) "Study on Influence of Infiltration Depth of Surface Treatment Material on Freezing Behavior and Mechanism Accelerating Scaling in Concrete," The 2nd International Conference of Microstructure Related Durability of Cementitious Composites, Amsterdam, The Netherlands, ID. 33, Compendium Papers of CD ROM.
- Y. Hama, Y. Kishimoto, and **Mohamed Zakaria**, (April 2012), "Frost Resistance and Micro Pore Structure Change of Mortar Exposed to Different Climate Conditions," The 2nd International Conference of Microstructure Related Durability of Cementitious Composites, Amsterdam, The Netherlands, ID. 34, Compendium Papers of CD ROM.
- W. Zhang, **Mohamed Zakaria**, Y. Kishimoto, Y. Hama, (July 2012), "Drying Shrinkage and Microstructure Characteristics of Ground Granulated Blast Furnace Slag-Cement Mortar," Proceedings of the Japan Concrete Institute, Vol. 34, No. 1, pp. 388-393.
- S. H. Na, Y. Hama, M. Taniguchi, O. Katsura, T. Sagawa, **Mohamed Zakaria**, (August 2012), "Experimental Investigation on Reaction Rate and Self-healing Ability in Fly Ash Blended Cement Mixtures," Journal of Advanced Concrete Technology, JCI, Vol. 10, No. 7, pp. 240-253.
- **Mohamed Zakaria**, Y. Kishimoto, Y. Hama, (August 2012), "How Shear Reinforcement Characteristics Can Affect Shear Cracks Displacements in Concrete Beams with Shear Reinforcement," 6th International Symposium on Performance Improvement of Concrete for Long Life Span Structure, Cheongju, Korea, pp. 87-92.
- Reiko Narumi, Wenyan Zhang, **Mohamed Zakaria**, (March 2013), Yoshihiko Kishimoto, Yukio Hama, "Influence of pore structure change and surface tension on shrinkage properties and frost resistance of cement mortar incorporating SRA," 2013 Joint Seminar on Environmental Science and Disaster Mitigation Research, pp. 85-86.
- T. Nakamura, Y. Hama, **Mohamed Zakaria**, (July 2013), "Influence of Environmental Conditions on

Pore Structure Change in Mortar with Various Types of Cement," The 6th International RILEM Workshop, Durability of reinforced concrete from composition to protection, Delft, The Netherlands, pp. 155-168.

- **Mohamed Zakaria**, Yoshihiko Kishimoto, Yukio Hama, (August 2013), "Effective approach for shear design of prestressed concrete beams," Proceedings of 7th International Symposium between Korea, China and Japan Performance Improvement of Concrete for Long Life Span Structure, pp. 185-190.
- Ryo Hasegawa, Yukio Hama, Osamu Takai, Yoshihiko Kishimoto, and **Mohamed Zakaria**, (August 2013), "Experimental investigation on setting time for repair mortar using rapid hardening admixture under low temperature," Proceedings of 7th International Symposium between Korea, China, and Japan Performance Improvement of Concrete for Long Life Span Structure, pp. 163-168.
- Yuya Homa, Yukio Hama, Yoshihiko Kishimoto, and **Mohamed Zakaria**, (August 2013), "Influence of size and shape of specimen on frost resistance of mortar and concrete materials," Proceedings of 7th International Symposium between Korea, China, and Japan Performance Improvement of Concrete for Long Life Span Structure, pp. 61-64.
- Reiko Narumi, Wenyan Zhang, **Mohamed Zakaria**, and Yoshihiko Kishimoto, Yukio Hama, (August 2013), "Influence of characteristics of shrinkage reducing agent on frost resistance in mortar," Proceedings of 7th International Symposium between Korea, China, and Japan Performance Improvement of Concrete for Long Life Span Structure, pp. 103-108.
- **Mohamed Zakaria**, Na Seung Hyun, and Yukio Hama, (November 2013), "Influence of Fly Ash on Self-healing Performance in Cracked Concrete," The 3rd International Conference on Engineering and Applied Science, Osaka, Japan.
- Wenyan Zhang, **Mohamed Zakaria**, and Yukio Hama, (December 2013), "Influence of Aggregate Materials Characteristics on the Drying Shrinkage Properties of Mortar and Concrete," Construction and Building Materials, Vol. 49, No. 12, pp. 500-510.
- Yuya Homa, Yukio Hama, Tohru Nakamura, **Mohamed Zakaria**, (March 2014), "Investigation on Early Age Frost Damage of Cement-Based Materials by Air Permeability Index," 2014 Joint Seminar on Environmental Science and Disaster Mitigation Research, pp. 119-120.
- Daichi Wakamatsu, Yukio Hama, **Mohamed Zakaria**, Reiko Narumi, Tohru Nakamura, (March 2014), "Applicability of Water-repellent Porous Powder as Air-entraining Material in Mortar Containing Fly Ash or Shrinkage Reducing Admixture," 2014 Joint Seminar on Environmental Science and Disaster Mitigation Research, pp. 121-122.
- Takashi Yasuda, Yoshihiko Kishimoto, **Mohamed Zakaria**, (March 2014), "Simulated Rainfall Experiment and Analytical Modeling of Flowing Down and Remaining Water on Building Wall Surface," 2014 Joint Seminar on Environmental Science and Disaster Mitigation Research, pp. 123-124.

- **Mohamed Zakaria**, S. H. Na, Y. Hama, (July 2014), "Durability of Concrete Incorporating Fly Ash and Blast Furnace Slag Cementitious Materials," 8th International Symposium on Performance Improvement of Concrete for Long Life Span Structure, Okinawa, Japan, pp. 180-185.
- W. Zhang, R. Narumi, Y. Hama, **Mohamed Zakaria**, (July 2014), "Research on the Drying Shrinkage of Cementitious Composite Incorporating Shrinkage Reducing admixture," 8th International Symposium on Performance Improvement of Concrete for Long Life Span Structure, Okinawa, Japan, pp. 192-197.
- Mona Ismail, Osama Ali and **Mohamed Zakaria**, (December 2019), "Evaluating Parameters Affecting Concrete Constitutive Model of Concrete Deep Beams Using Finite Element Method", the Tenth Alexandria International Conference on Structural and Geotechnical Engineering and Management (AICSGE-10), Alexandria – Egypt.
- Mona Ismail, Osama Ali and **Mohamed Zakaria**, (December 2019), "Reinforced Concrete Deep Beams with Square Web Openings", the Tenth Alexandria International Conference on Structural and Geotechnical Engineering and Management (AICSGE-10), Alexandria – Egypt.
- Mahmoud Abd-Elwahab, Hossam Mohamed, Hany Madkour and **Mohamed Zakaria**, (December 2019), "Quantifying the Strength Reduction of RC Building Due to In-Plane Irregularity Using Pushover Aaalysis", the Tenth Alexandria International Conference on Structural and Geotechnical Engineering and Management (AICSGE-10), Alexandria – Egypt.
- Mohamed Elsibaey, Zakaria Awadallah, **Mohamed Zakaria**, and Omar Farghal, (2020), "Strengthening of reinforced concrete square columns by means of Ferro cement jacket", Journal of Engineering Sciences, 48(No 5), pp. 888-909. https://doi: 10.21608/jesaun.2020.118571
- Mariet Abd-Mariam, Osama Ali and **Mohamed Zakaria**, (February 2021), "Numerical Analysis of FRP Reinforced Concrete Flat Slabs under High Temperature", International Conference on Engineering Science and Technology (ICEST 21), Luxor – Egypt.
- Ail Abdulrahim, Osama Ali, and **Mohamed Zakaria**, (2021), "Numerical analysis of RC beams strengthened in shear using externally bonded FRP sheets", American Journal of Engineering Research, Vol 10, Issue 01, pp-70-78, ISSN: 2320-0847
- Mariet Abd-Mariam, Osama Ali and **Mohamed Zakaria**, (2021), "Numerical Analysis of FRP Reinforced Concrete Flat Slabs under Elevated Temperature", American Journal of Engineering Research, Vol 10, Issue 01, pp-79-84, ISSN: 2320-0847
- Mohamed Elsibaey, Zakaria Awadallah, Omar Farghal, and **Mohamed Zakaria**, (2021), "Strengthening of RC Square Columns Via Ferro-cement Technique", American Journal of Engineering Research, Vol 10, Issue 01, pp-85-96.
- Abd El-Rahem Tarek , Omar Farghal, **Mohamed Zakaria**, and Zakaria Awadallah, (2021), "Tensile mechanical properties of basalt fiber reinforced polymer composite", International Journal of Scientific & Engineering Research Vol 12, Issue 9, 731 ISSN 2229-5518.

- Osama Ali, **Mohamed Zakaria**, Hassen Riahi, and David Bigaud, (2021), "Probabilistic calibration of the strength reduction factor for the design of rectangular short concrete columns reinforced with FRP bars under eccentric axial loading – Update of ACI 440 rules", Journal of Building Engineering, Vol 43 ،103096. https://doi.org/10.1016/j.jobe.2021.103096.
- Al-shymaa Ameen, Zakaria Awadallah, **Mohamed Zakaria**, and Laila Mahmoud Abdul-Hafez, (2021), "Effect of Basalt Fibers Ratio on High Strength Concrete Columns Reinforced with Hybrid Reinforcement Bars", International Journal of Advanced Research in Science, Engineering and Technology, Vol. 8, Issue 10.
- Mohamed Abo El-Kassem, Osama Ail, and **Mohamed Zakaria**, (2022) "Effect of Using Glass Power as A partial Replacement of Cement on Concrete Properties", Journal of Al-Azhar University Engineering Sector, 17(62), 219-236. https://doi: 10.21608/auej.2022.216806
- **Mohamed Zakaria**, Donia Salah, Mohamed Mahmoud, and Zakaria Awadallah, (2022), "Enhancement the Shear behavior of concrete beams reinforced with hybrid-wires bars by using steel fibers", Journal of Advanced Engineering Trends, 41, 1, 55-70. https://doi: 10.21608/jaet.2020.42204.1043
- Mona Saleh, Mohammed AlHamaydeh, and **Mohamed Zakaria,** (2023), "Shear capacity prediction for reinforced concrete deep beams with web openings using artificial intelligence methods", Engineering Structures, Vol 280, 115675. https://doi.org/10.1016/j.engstruct.2023.115675
- Mona Saleh, Mohammad AlHamaydeh, **Mohamed Zakaria**, (2023), "Finite element analysis of reinforced concrete deep beams with square web openings using damage plasticity model", Engineering Structures, Vol 278, 115496, https://doi.org/10.1016/j.engstruct.2022.115496.
- M. Saleh, M. AlHamaydeh and **Mohamed Zakaria**, "Enhancement of High-Strength RC Deep Beam Behavior with Critical Opening Locations Using Conventional Steel Bars", the Alexandria 11th International Conference of Structural and Geotechnical Engineering, Alex., Egypt, 2023.
- Mohamed O. Elsibaey, Mona Saleh, Zakaria H. Awadallah, Abdo Khalaf, Ayman Othman, and **Mohamed Zakaria**, "Experimental Investigation on the Behavior of High-Strength Self-Compacted Reinforced Concrete Slender Beams under Static Loading"," J. Tianjin Univ. Sci. Technol., vol. 57, no. 03:2024, 2024, doi: 10.5281/zenodo.10792408.
- Eldin, M. K., Awadallah, Z. H., Ahmed, M. M., & Abdelhamed, **Mohamed Zakaria.** (2024). Structural Behavior of Concrete Beams Strengthened with Near-Surface-Mounted BFRP Reinforcement. Aswan University Journal of Sciences and Technology, *4*(3), 1-16.
- Abo-elkassem, M. H., Othman, A. M., Ahmed, A., & **Mohamed Zakaria** (2025). Manufacturing and properties of hybrid BFRP & GFRP bars. Journal of Al-Azhar University Engineering Sector (JAUES) (Accepted).
- Elsibaey, M. O., Saleh, M., Awadallah, Z. H., Khalaf, A., Othman, A., & **Mohamed Zakaria** (2025). "Investigating the behaviour of high-strength self-compacted reinforced concrete slender beams

experimentally and numerically". Aswan University Journal of Science and Technology, 5(3), 172–194.

- Abdelhafez, M. A., Awadallah, Z. H., Farghal, O. A., & **Mohamed Zakaria** (2025). "Shear behavior of RC T-beams strengthened with ferro cement". Aswan University Journal of Sciences and Technology, Scientific Acceptance (Manuscript ID: AUJST-2509-1217).
- Karraam, A. B., Farghal, O. A., **Mohamed Zakaria**, & Awadallah, Z. H. (2026). "Strengthening of reinforced concrete column with ferrocement self-compacted concrete jacket". Aswan University Journal of Science and Technology, Vol. 6, No. 1, March 2026 (Accepted).
- Younis, A. M., Ahmed, M. M., & **Mohamed Zakaria** (2026). "Investigating behavior of T-section prestressed concrete deep beams". Aswan University Journal of Science and Technology, Vol. 6, No. 1, March 2026 (Accepted).
- Abo-elkassem, M. H., Saleh, M., Ahmed, A., Othman, A. M., & **Mohamed Zakaria** (2026). "Studying the behavior of high-strength fiber concrete slabs reinforced by hybrid reinforcement. Aswan University Journal of Science and Technology, Vol. 6, No. 1, March 2026 (Accepted).

Reference contacts:

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