Tarek Ragab, PhD, P.E.
Assistant Professor of Civil Engineering
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Arkansas State University
State University, AR 72467
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Education

Ph.D. June 2010 (GPA: 3.945) Civil, Structural and Environmental Engineering Department, State University of New York at Buffalo, Buffalo, NY.

M.Sc. June 2007 (GPA: 3.945) Civil, Structural and Environmental Engineering Department, State University of New York at Buffalo, Buffalo, NY

M.Sc. June 2005 Structural Engineering Department, Alexandria University, Alexandria, Egypt

B.Sc. June 2002 (GPA: 90/100) Civil Engineering Department, Alexandria University, Alexandria, Egypt. Graduated with distinction honors. 2nd out of 611 students

Academic Experience

Assistant Professor of Civil Engineering August 2016-Present
College of Engineering and Computer Science, Arkansas State University

Senior Research Scientist August 2015-August 2016
Civil, Structural and Environmental Engineering Department
State University of New York at Buffalo

Assistant Professor September 2010-August 2015
Civil Engineering department, University of Tabuk

Research Assistant June 2006-July 2010
Civil, Structural and Environmental Engineering Department
State University of New York at Buffalo

Teaching Assistant August 2005-June 2006, Summer 07, 08 and 09
Civil, Structural and Environmental Engineering Department
State University of New York at Buffalo

Teaching Assistant September 2002- August 2005
Structural Engineering Department, Alexandria University

Professional Experience

Part time Structural Engineer August 2002-August 2005
FACB LLC

Professional Licensure

Registered Professional Engineer in Arkansas, (license number 18917)

Courses Taught

Arkansas State University:
CE3213 Structural Analysis I: Spring19, Spring18, Spring17
CE3233 Structural Analysis II: Fall16, Fall17, Fall18
CE4243 Reinforced Concrete Design: Fall16, Fall17, Fall18
CE4283 Structural Steel Design: Spring19, Spring18, Spring17
ENGR 2403 Statics: Summer19, Summer18, Fall18
CE2202 Civil Engineering Presentations: Spring19(2 sections)

CE429v Special Problems in steel design: Fall17, Fall18
CE429v Special Problems in Reinforced Concrete design: Spring19
ENGR 4463 Senior Design I: Fall16, Fall17
ENGR 4482 Senior Design II: Spring18, Spring17

University of Tabuk:
CE302 Structural Analysis I: Fall10, Spring11, Spring12, Fall12, Spring13, Fall13, Spring14, Fall14, Spring15
CE303 Structural Analysis II: Spring11, Fall11, Spring12, Summer12, Spring13, Summer13, Fall13, Spring14, Summer14, Fall14, Spring15
CE451 Reinforced Concrete I: Fall11, Summer12, Fall12, Summer13, Fall13, Spring14, Fall14
CE452 Reinforced Concrete II: Spring12, Spring13, Spring14, Fall14, Spring15, Summer15
CE405 Steel Structures: Fall12, Spring13, Spring14, Summer14
CE406 Earthquake Engineering: Spring14, Fall14, Spring15, Summer15
CE494 Computer Applications for Civil Engineering: Fall11, Fall12, Fall13
CE321 Materials I: Fall10
CE495 Graduation Project I: Fall12, Fall13, Fall14
CE496 Graduation Project II: Spring13, Spring14, Spring15
CE487 Special topics: Fall12

Oversight of Ph.D. Students

1. Ji Zhang, “Electro-thermo-mechanical behavior of strained graphene nanoribbons”. State University of New York at Buffalo. Expected December 2019. Lead advisor: Cemal Basaran
2. Weixiang Zhang, “Wind forces in metal-semiconductor graphene nanoribbons heterojunctions” State University of New York at Buffalo. Expected May 2020. Lead advisor: Cemal Basaran
3. Tingyue Lan, “Using graphene and single walled carbon nanotubes for next generation cool power electronics: A Multi-scale framework". State University of New York at Buffalo. Expected May 2020. Lead advisor: Cemal Basaran
4. Yanbiao Chu, “Multi-scale damage mechanics of next generation interconnects for nano-electronics and power electronics”. State University of New York at Buffalo. August 2015. Lead advisor: Cemal Basaran
5. Pierre Gautreau, “Analysis of Carbon Nanotubes under Electrical and Mechanical Stresses: A Study of the Influence of Non-Equilibrium Lattice Vibrations and Strain Deformation". State University of New York at Buffalo. December 2013. Lead advisor: Cemal Basaran

Undergraduate student advising

1. Hannah Massey, Jesse Ward, Ryan Brunell, Samuel Spann, “Structural Health Monitoring of Reinforced Concrete Beams”. Arkansas State University/ Fall2017, Spring2018
2. Carter Andrews, Hunter Egan, Luke Griffin, Matt Reid, “Nucor Barge Mooring System”. Arkansas State University. Fall2016, Spring2017

Research Funding (Total: $78,190)

1. “Temperature dependence of joule heating in graphene nanoribbons.” University of Tabuk. Role: PI, ($10,000). January 2015-November 2015.
2. "Phonon-phonon scattering rates in carbon nanotubes." University of Tabuk. Role: PI, ($10,000). January 2014-November 2014.
3. “Unraveling of double walled carbon nanotubes using molecular dynamics simulations.” King Abdulaziz City for Science and Technology (KACST). Role: PI, ($19,000).May 2013-May 2014.
4. "Time evolution of the electron-phonon scattering rates in single-walled carbon nanotubes." University of Tabuk. Role: PI, ($13,330). January 2013-November 2013.
5. "Developing a Matlab molecular dynamics code with emphasis on carbon potential for educational and research purposes." University of Tabuk. Role: PI, ($12,260). January 2012-November 2012.

6. "Development of computer aided learning package for engineering courses." University of Tabuk. Role: Co-PI, ($13,600). January 2012-November 2012.

Awards and Honors

Research Professor of the month, Arkansas State University, December 2017

NSF fellowship for attending the Summer Institute on Nano Mechanics and Materials, held at Northwestern University, USA, summer 2007

Retention fund scholarship, State University of New York at Buffalo, 2006

Full PhD Scholarship, State University of New York at Buffalo, 2005

Quonswa award for Excellence in Hydraulics, Alexandria University, 2002

Quonswa award for Excellence in Hydraulics, Alexandria University, 2001

Editorship, Conference Organization and Panel services

Guest editor of ASME Journal of Electronic Packaging 2010 special issue on Carbon nanotubes and graphene.

Associate Editor, Open Journal of Modelling and Simulation (OJMSi)

Editorial Board Member, Progress of Electrical and Electronic Engineering.

Symposium organizer "Multi-Scale Analysis of Graphene and Carbon Nano Tube", 17th U.S. National Congress on Theoretical & Applied Mechanics, Michigan, June 2014.

Session Chair “Multi-Scale Computations in Fluids, Structures, and Materials”. ASME IMECE2017, Tampa, Florida, November 2017.

Panel reviewer, NASA’s Technology Research Fellowships (NSTRF) Panel 7, 2017/2018

Panel reviewer, NASA’s Technology Research Fellowships (NSTRF) Panel 11, Modeling, Simulation, Information Technology and Processing, 2017/2018

Session Chair “Modeling and Experiments in Nanomechanics and Nanomaterials”. ASME IMECE2018, Pittsburg, Pennsylvania, November 2018.

Technical Reviewer

Carbon

ASCE Journal of Nanomechanics and Micromechanics

Mechanics of Advanced Materials and Structures

Research Grant Council (RGC) of Hong Kong

Journal of Electronic Packaging, ASME

Journal of Electronic materials

The Journal of Physical Chemistry

International Journal of Electronics and Communications

Structural Engineering and Mechanics

Computational Materials Science

International Journal of Materials and Structural Integrity

Journal of Applied Physics

EuroPhysics letters

Recent Patents on Biomedical Engineering

Materials

Nanomaterials

Applied sciences

IEEE Transactions on Components, Packaging and Manufacturing Technology

Journal of Computational Methods in Sciences and Engineering

2014 ASME International Mechanical Engineering Congress & Exposition (IMECE14)

2008 ASME International Mechanical Engineering Congress & Exposition (IMECE08)

Professional Membership

American society of Mechanical Engineers (ASME)

Press

Press article acknowledging research under the title of "Carbon nanotubes are superior to metals for electronics, according to engineers" in the ScienceDaily. April 21, 2009, http://www.sciencedaily.com/releases/2009/03/090320134041.htm

Publications (29 Publication in peer-reviewed journals / 308 citations according to Google scholar as of May 2019)

Publications in refereed journals

(J1) Zhang, J., Osloub, E., Siddiqui, F., Zhang, W., Ragab, T., Basaran, C., "Anisotropy of Graphene Nanoflake Diamond Interface Frictional Properties". *Materials*, Vol. 12, PP1425, (2019)

(J2) Zhang, W., Ragab, T., Basaran, C., "Electrostatic Doping-Based All GNR Tunnel FET: An Energy-Efficient Design for Power Electronics". *IEEE Transactions on Electron Devices,* Vol. 66, pp 1971, (2019)

(J3) Zhang, J., Ragab, T., Basaran, C., "Comparison of fracture behavior of defective armchair and zigzag graphene nanoribbons". *International Journal of Damage Mechanics,* Vol. 28, pp 325, (2019)

(J4) Ragab, T., Basaran, C., "Shear Strength of Square Graphene Nanoribbons beyond Wrinkling". *Journal of Electronic Materials,* Vol.47, pp 3891, (2018)

(J5) Zhang, J., Zhang, W., Ragab, T., Basaran, C., "Mechanical and electronic properties of graphene nanomesh heterojunctions". *Computational Materials Science,* Vol. 153, pp 64, (2018)

(J6) Lan, T. Ragab, T., Basaran, C., "Electron-phonon scattering and Joule heating in copper at extreme cold temperatures". *Computational Materials Science,* Vol. 149, PP 397, (2018)

(J7) Zhang, W., Basaran, C., Ragab, T., "Impact of geometry on transport properties of armchair graphene nanoribbon heterojunction". *Carbon*, Vol. 124, pp 422, (2017)

(J8) Zhang, J., Ragab, T., Basaran, C., "The effects of vacancy defect on the fracture behaviors of zigzag graphene nanoribbons". *International Journal of Damage Mechanics,* Vol. 26, pp 608, (2017)

(J9) Ragab, T., McDonald, J., Basaran, C., "Aspect ratio effect on shear modulus and ultimate shear strength of graphene nanoribbons". *Diamond & Related Materials,* Vol.74, pp 9, (2017)

(J10) Zhang, W., Ragab, T., Basaran, C., "Unraveling mechanics of armchair and zigzag graphene nanoribbons". *International Journal of Damage Mechanics*, Vol. 26, pp 447, (2017)

(J11) Zhang, J., Ragab, T., Basaran, C., "Influence of Vacancy Defects on the Damage Mechanics of Graphene Nano Ribbons". *International Journal of Damage Mechanics,* Vol. 26, pp 28, (2017)

(J12) Fu, Y., Ragab, T., Basaran, C., "The effect of Stone-Wales defects on the mechanical behavior of graphene nano-ribbons". *Computational Materials Science,* Vol. 124, pp 142, (2016)

(J13) Chu, Y., Gautreau, P., Ragab, T., Basaran, C., "Strained Phonon-Phonon Scattering in Carbon Nanotubes". *Computational Materials Science*, Vol. 112, pp 87, (2016).

(J14) Chu, Y., Ragab, T., Gautreau, P., Basaran, C., "Mechanical Properties of Hydrogen-Edge-Passivated Chiral Graphene Nanoribbons". *ASCE Journal of Nanomechanics and Micromechanics*, Vol. 5, pp 04015001, (2015).

(J15) Gautreau, P., Chu, Y., Ragab, T., Basaran, C., "Phonon–phonon scattering rates in single walled carbon nanotubes". *Computational Materials Science*, Vol.103, pp 151, (2015).

(J16) Chu, Y., Ragab, T., Basaran, C., "Temperature dependence of Joule heating in Zigzag Graphene Nanoribbon". *Carbon*, Vol. 89, pp 179, (2015).

(J17) Chu, Y., Gautreau, P., Ragab, T., Basaran, C., "An accelerated algorithm for full band electron phonon scattering rate computation". *Computer Physics Communications*, Vol.185, pp 3392, (2014).

(J18) Gautreau, P., Ragab, T., Chu, Y., Basaran, C., "Phonon dispersion and quantization tuning of strained carbon nanotubes for flexible electronics". *Journal of Applied Physics*, Vol.115, pp 243702, (2014).

(J19) Chu, Y., Ragab, T., Basaran, C., "The size effect in mechanical properties of finite-sized graphene nanoribbon". *Computational Materials Science*, Vol. 81, pp 269, (2014).

(J20) Gautreau, P., Ragab, T., Basaran, C., "Influence of Hot Phonons on Wind Forces in Metallic Single Walled Carbon Nanotubes". *Carbon*, Vol.57, pp 59, (2013).

(J21) El-Garhy, B., Ragab, T., Asal, F., "A Computer Aided Learning Package for Teaching Geotechnical Engineering". *Electronic Journal of Geotechnical Engineering*, Vol. 18-G, pp1437, (2013).

(J22) Gautreau, P., Ragab, T., Basaran, C., "Hot phonons contribution to joule heating in single-walled carbon nanotubes". *Journal of Applied Physics*, Vol.112, pp 103527, (2012).

(J23) Ragab, T., Basaran, C., "The unravelling of open-ended single walled carbon nanotubes using molecular dynamics simulations". *ASME Journal of Electronic Packaging*, Vol. 133, pp 020903, (2011).

(J24) Ragab, T., Basaran, C., "The prediction of the effective charge number in single walled carbon nanotubes using Monte Carlo simulation". *Carbon*. Vol. 49, pp 425, (2011).

(J25) Ragab, T., Basaran, C., "Semi-classical transport for predicting joule heating in carbon nanotubes". *Physics Letters A*, Vol. 374, Issue 24, pp 2475, (2010).

(J26) Ragab, T., Basaran, C., "A quantum mechanical formulation of electron transport induced wind forces in metallic single walled carbon nanotubes". *Carbon*, Vol. 48, Issue 1, pp 47, (2010).

(J27) Ragab, T., Basaran, C., "A framework for stress computation in Single-walled carbon nanotubes under uniaxial tension". *Computational Materials Science*, Vol. 46, Issue 4, pp 1135, (2009).

(J28) Ragab, T., Basaran, C., "Joule heating in single-walled carbon nanotubes". *Journal of Applied Physics*, Vol. 106, Issue 6, pp 63705, (2009). Selected for simultaneous publication in the Virtual Journal of Nanoscale Science & Technology, Vol. 20, Issue 14.

(J29) El-Hifnawy, L.M., Mashaly, E.S.A., El-Heweity, M.M., Ragab, T.M., "Evaluation of the Performance of Circular Hollow Section Joints Reinforced by Stiffened Plates under Fatigue Loading". *Alexandria Engineering Journal*, Vol. 43, no. 6, pp 849, (2005).

Publications in refereed conference proceedings

(P1) Gautreau, P., Ragab, T., Basaran, C., "Hot phonons contribution to scattering rates in single-walled carbon nanotubes". Proceeding of Nanotech Interconnect World 2013, Washington D.C., USA, (2013).

(P2) Ragab, T., Basaran, C., "Modeling Joule Heating in Carbon Nanotubes with Monte Carlo Simulations". Proceeding of IEEE ITHERM 2012, San Diego, USA, (2012).

(P3) Basaran, C., Ragab, T., "Damage Mechanics of Carbon Nano Tubes Under Uniaxial Tension". Proceeding of InterPack'09, San Francisco, USA, (2009).

(P4) Ragab, T., Basaran, C., "Stress computation in a single-walled carbon nanotube under uniaxial tension". Proceeding of 2009 Conference on Grand Challenges in Modeling and Simulation, Istanbul, Turkey, (2009).

(P5) El-Hifnawy, L.M., Mashaly, E.S.A., El-Heweity, M.M., Ragab, T.M., "Effect of Stress Concentrations in Tubular Multi-planar Gap Joints on Fatigue Design". Proceeding of the 5th International Conference on Civil and Architectural Engineering, Military Technical College, Cairo, Egypt, (2004).

Technical and Conference presentations

1. "Frictional properties of graphene nano-flakes on diamond substrate", ASME International Mechanical Engineering Congress and Exposition (IMECE18), Piitsburgh, PA, November, 12th 2018
2. "Mechanical and electrical properties of graphene nanomesh heterojunctions", ASME International Mechanical Engineering Congress and Exposition (IMECE18), Piitsburgh, PA, November, 12th 2018
3. "Electron induced wind forces in metallic graphene nanoribbons", ASME International Mechanical Engineering Congress and Exposition (IMECE18), Piitsburgh, PA, November, 12th 2018

4. "Electrostatic doping based graphene nanoribbon tunneling transistor: A Simulation study", ASME International Mechanical Engineering Congress and Exposition (IMECE18), Piitsburgh, PA, November, 14th 2018

5. "Impact of geometry on transport properties of armchair graphene nanoribbon heterojunction", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

6. "Unravelling mechanics of armchair and zigzag graphene nanoribbons", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

7. "Fracture behavior and ultimate failure strength of graphene nanomeshes", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

8. "Fracture behavior and ultimate failure strengths of graphene nanoribbons", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

9. "Size effect on the shear modulus and shear strength of graphene nanoribbons", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

10. "Electron-phonon scattering rates and joule heating in copper at extreme low temperatures", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 9th 2017

11. "Graphene nanoribbon mechanics post-wrinkling stage", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 8th 2017.

12. "Impact ionization in semiconducting single wall carbon nanotubes using ensemble Monte Carlo simulation", ASME International Mechanical Engineering Congress and Exposition (IMECE17), Tampa, Florida, November, 7th 2017

13. "Strain tuning of phonon dispersion relations in Single-walled carbon nanotubes", MRS Spring Meeting and Exhibit, Phoenix, AZ, March 31st 2016.

14. "Development of a Graphene Nano Ribbon Power Electronics", Office of Naval Research 331 Peer review, Department of Defense, Arlington, VA, December 8th 2015.

15. "Mechanical Properties of Graphene Nano-ribbon", Invited Lecture, Nano-Science Workshop, Department of Physics, University of Tabuk, Tabuk, KSA, May, 23rd 2013.

16. "Review of Joule heating in graphene nanoribbon (GNR)", IEEE ITHERM2012, San Diego, California, May 30th 2012.

17. "Modeling Joule Heating in Carbon Nanotubes with Monte Carlo Simulations", IEEE ITHERM2012, San Diego, California, May 30th 2012.

18. "Molecular Dynamics Simulations for Single-Walled Carbon Nanotubes under uniaxial tension", Invited seminar lecture, Alexandria University, Alexandria, Egypt, September, 28th 2010.

19. "Atomistic Modeling of Tin Surface and Grain Boundary Diffusion", ASME International Mechanical Engineering Congress and Exposition (IMECE09), Lake Buena Vista, Florida, November, 19th 2009.

20. "Key Note Lecture- Using Single-Walled Carbon Nanotubes for Electronics", ASME International Mechanical Engineering Congress and Exposition (IMECE09), Lake Buena Vista, Florida, November, 18th 2009.

21. "Quantum Mechanical Formulation For the Joule Heating in Single-walled Carbon Nanotubes", ASME International Mechanical Engineering Congress and Exposition (IMECE09), Lake Buena Vista, Florida, November, 17th 2009.

22. "Prediction of Current-induced Forces in Single-walled Carbon Nanotubes", ASME International Mechanical Engineering Congress and Exposition (IMECE09), Lake Buena Vista, Florida, November, 16th 2009.

23. "Simulating Single Walled Carbon Nanotube Failure under Tension", ASME International Mechanical Engineering Congress and Exposition (IMECE09), Lake Buena Vista, Florida, November, 17th 2009.

24. "Quantum mechanical formulation for the joule heating in single walled carbon nanotubes" Nanostructured systems, state University of New York at Buffalo, Buffalo, NY, February, 17th 2009.

25. "Joule heating single-walled carbon nanotubes", Spintronic/Nanostructures workshop, state University of New York at Buffalo, Buffalo, NY, April, 24th 2009.

University Service

Member, Undergraduate Enrollment and Academic Policies Committee, Arkansas State University

Member, Undergraduate Graduation and Academic Appeals Committee, Arkansas State University

Member, Engineering workshop organizing committee, University of Tabuk

Member, University non-academic-Engineering jobs hiring committee, University of Tabuk

Member, University Projects committee, University of Tabuk

College Service

Member, mechanical engineering faculty search committee, Arkansas State University

Member, ABET outcome No. 3 assessment Committee, Arkansas State University

Member, Honors and award committee, Arkansas State University

Member, Job fair organizing committee, University of Tabuk

Member, Faculty hiring committee, University of Tabuk

Member, International collaboration committee, University of Tabuk

Departmental Service

Member, Lab committee, University of Tabuk

Member, Accreditation committee, University of Tabuk

Department's academic coordinator, University of Tabuk

Other Services

Represented the Civil Engineering program at the transfer student registration event, March 29, 2019

Represented the Civil Engineering program at the spring 2019 Engineering banquet

Represented the Civil Engineering program at the select a major event, October 3, 2018

Represented the Civil Engineering program at the spring 2018 Engineering banquet

Represented the Civil Engineering program at the honor's student registration event, April 10, 2018

Represented the Civil Engineering program at the Red Wolves Rising Event, at Jonesboro, AR, November 14, 2017

Represented the Civil Engineering program at the Fall Senior preview days, October 28, 2017

Represented the Civil Engineering program at the A-State College Fair, October 18, 2017

Represented the Civil Engineering program at the inaugural Red Wolves Rising Event at Little Rock, October 17, 2017

Represented the Civil Engineering program at the new student registration event, May 17, 2017

Represented the Civil Engineering program at the new student registration event, April 10, 2017

Represented the Civil Engineering program at the Fall Senior preview days, November 29, 2016

Participated in the field trip to an ARDOT bridge construction site in Pocahontas for Engineering students, AR, September 20, 2017