CURRICULUM VITAE – Samuel Kinde Kassegne, PhD, PE

I. EDUCATION

Institution	Year	Degree	Major Field
Anna University (Guindy)	1984	B.E. (**First Class Distinction**)	CE
Middle East Technical University	1987	M.S.	CE
Virginia Tech (VPI &SU)	1992	Ph.D.	Engineering Mechanics

Title of Dissertation
Layerwise Theory for FEA Analysis of Discretely Stiffened Laminated Cylindrical Shells, 1992. Advisor: Dr. JN Reddy.

II. TEACHING POSITIONS AND RANKS HELD

Institution	Rank	Date
NSF ERC (CNT)	Deputy Director	2015-Present
San Diego State University	Professor	2015-Present
San Diego State University	Associate Professor	2010-2015
San Diego State University	Assistant Professor	2005-2010
University of California, Irvine	Visiting Scientist/Lecturer	2003-2004
UCSD Extension	PT Faculty & Instructor	1999-2002
Addis Ababa University	Adjunct Faculty (Computer Science)	2001-2004
Adama Science & Technology University	Adjunct Professor (Mech, Chem & Mat)	2022 - Present

III. INDUSTRIAL POSITIONS HELD

Company	Position	Date
Microfabrica (MEMS Start-up)	Senior FEA MEMS Engineer	2004-2005
Nanogen (Biotech Start-up)	Principal Engineer	2001-2003
RAM International (now Bentley)	FEA Software Devt. Manager	1993-2001

IV. PROFESSIONAL ACHIEVEMENTS

Refereed Journal Articles

1. Surabhi Nimbalkar, Rhea Montgomery-Walsh, James Bunnell, Sandra Lara Galindo, Brinda Kodira Cariappa, Abhivyakti Gautam, Rene Arvizu, Shize Yang, Sam **Kassegne**, "*Carbon Allotropes form a Hybrid Material: Synthesis, Characterization, and Molecular Dynamics Simulation of Novel Graphene-Glassy Carbon Hybrid Material"*, Carbon, **2022**.
2. Yudan Whulanza, Y.B. Arafata, S.F. Rahman, M.S. Utomo, Sam **Kassegne**, "*On-chip Testing of a Carbon-based Platform for Electro-adsorption of Glutamate*", Heliyon Volume 8, Issue 5, **2022**.
3. Montgomery-Walsh, R., Nimbalkar, S., Bunnell, J., Galindo, S.L., **Kassegne**, S., "*Molecular Dynamics Simulation of Evolution of Nanostructures and Functional Groups in Glassy Carbon under Pyrolysis,*" Carbon, Volume 184, **2021.**
4. Nimbalkar, S., Samejima, S., Dang, V., Hunt, T., Nunez, O., Moritz, C., and **Kassegne**, S., "*Graphene on Glassy Carbon Microelectrodes Demonstrate Long-term Structural and*

Functional Stability in Neurophysiological Recording and Stimulation," Journal of Neural Engineering, Volume 18, Number 5, **2021.**

5. Devi, M, Vomero, M, Fuhrer, E, Castagnola, E, Gueli, C, Nimbalkar, S, Hirabayashi, M, **Kassegne**, S, Stieglitz, T, and Sharma, S "*Carbon-based Neural Electrodes: Promises and Challenges,*" Journal of Neural Engineering, Volume 18, Number 4, **2021.**
6. Amirghasemi, F. and **Kassegne**, S., "*Effects of RF Magnetron Sputtering Deposition Power on Crystallinity and Thermoelectric Properties of Antimony Telluride and Bismuth Telluride Thin Films on Flexible Substrates*," Journal of Electronic Materials 50 (4), 2190-2198, **2021**.
7. Castagnola, E., Thongpang, S., Hirabayashi, M., Nava, G., Nimbalkar, S., Nguyen, T., Lara, S., Oyawale, A., Bunnell, J., Moritz, C., and **Kassegne**, S., "*Glassy Carbon Microelectrode Arrays Enable Voltage-Peak Separated Simultaneous Detection of Dopamine and Serotonin Using Fast Scan Cyclic Voltammetry*," Analyst 146 (12), 3955-3970, **2021**.
8. Vahidi, N., Rudraraju, S., Castagnola, E., Cea, C., Nimbalkar, S., Hanna, R., Arvizu, R., Dayeh, S.A., Gentner, T.Q., **Kassegne**, S., *"Epi-intra Neural Probes with Glassy Carbon Microelectrodes Help Elucidate Neural Coding and Stimulus Encoding in 3D Volume of Tissue*", Journal of Neural Engineering, Volume 17, Number 4, **2020**.
9. Olivier, M.M., and **Kassegne**, S., "*Real-Time Monitoring and Diagnosis of Organic Solar Cell Stability,*" International Journal of Scientific and Technology Research, 9 (2), 2285-2391, **2020.**
10. Nunut, I., Whulanza, Y., Kassegne, S., "*Testing of Beeswax Printing Technology in the Design of a Paper-Based Microfluidic System*," International Journal of Technology 11 (5), 1036-1045, **2020**.
11. Nimbalkar, S., Fuhrer, E., Silva, P., Nguyen, T., Sereno, M., and **Kassegne**, S., "*Glassy Carbon Microelectrodes Minimize Induced Voltages, Mechanical Vibrations, and Artifacts in Magnetic Resonance Imaging,*" Nature Microsystems & Nanoengineering 5 (1), 1-11, **2019**.
12. Burks, R., Walker, Z., O'Neill, C., **Kassegne**, S., "*Microfabrication of Multi-layer Glassy Carbon Microstructures through Dye-doped Negative Photoresists*," Journal of Micromechanics and Microengineering 29 (12), 125012, **2019**.
13. Shaner, S., Allen, J.K., Felderman, M., Pasko, E.T., Wimer, C.D., Cosford, N.D.P., **Kassegne**, S.K., and Teriete, P., "*Design and Production of a Novel Microfluidic Device for the Capture and Isolation of Circulating Tumor Cell Clusters,*" AIP Advances 9, 065313, https://doi.org/10.1063/1.5084736. **2019**.
14. Huynh, N.U., **Kassegne**, S. & Youssef, G. "*Comparative Study of Tuning of Microfabrication Parameters for Improving Electrochemical Performance of Platinum and Glassy Carbon Microelectrodes in Neural Prosthetics," Microsyst Technol* **26,** 775–785, **2019**.
15. Nimbalkar, S., Castagnola, E., Balasubramani, A., Scarpellini, A., Samejima, S., Khorasani, A., Boissenin, A., Thongpang, S., Moritz, C., and **Kassegne**, S., "*Ultra-Capacitive Carbon Neural Probe Allows Simultaneous Long-Term Electrical Stimulations and High-Resolution Neurotransmitter Detection"*, Nature Scientific Reports 8 (1), 6958, **2018.**
16. Goshi, N., Castagnola, E., Vomero, C Gueli, C Cea, E Zucchini, D Bjanes, Maggiolini, E., Moritz, C., **Kassegne**, S., Ricci, D., Fadiga, L., "*Glassy Carbon MEMS for Novel Origami-styled 3D Integrated Intracortical and Epicortical Neural Probes*", Journal of Micromechanics and Microengineering 28 (6), 065009, **2018.**
17. Vomero, M., Castagnola, E., Ordonez, JS., Carli, S., Zucchini, E., Maggiolini, E., Gueli, C., Goshi, N., Ciarpella, F., Cea, C., Fadiga, L., Ricci, D., **Kassegne**, S., Stieglitz, T., "*Electrocorticography Arrays: Incorporation of Silicon Carbide and Diamond-Like Carbon as Adhesion Promoters Improves In Vitro and In Vivo Stability of Thin-Film Glassy Carbon*," Advanced Biosystems 2 (1), 1870001, **2018**.

18. Hirabayashi, M., Logan, K., Deutschman, CP., McDowell, TW., Torres, M., Pullman, D., **Kassegne**, S., "*Investigation of Interface Bonding Mechanisms between Glassy Carbon Microelectrodes and Polyimide Substrate through Fourier Transform Infrared Spectroscopy*", Journal of The Electrochemical Society 165 (8), B3060-B3070, **2018**.
19. Castagnola, E., Vahidi, N., Nimbalkar, S., Rudraraju, S., Thielk, M., Zucchini, E., Cea, C., Carli, S., Gentner, T., Ricci, D., Fadiga, L., **Kassegne**, S., "*In Vivo Dopamine Detection and Single Unit Recordings Using Intracortical Glassy Carbon Microelectrode Arrays*", MRS Advances, 1-6, **2018.**
20. Vomero, M., Castagnola, E., Ciarpella, F., Maggiolini, E., Goshi, N., Zucchini, E., Carli, S., Fadiga, L., **Kassegne**, S., Ricci, D., "*Highly Stable Glassy Carbon Interfaces for Long-Term Neural Stimulation and Low-Noise Recording of Brain Activity*", Nature Scientific Reports, Vol. 7, 4033, DOI: 10.1038/srep40332, **2017**.
21. Castagnola, E., Carli, S., Vomero, S., Scarpellini, A., Prato, M., Goshi, N., Fadiga, L., **Kassegne**, S., Ricci, D., "*Multilayer poly (3, 4-ethylenedioxythiophene)-dexamethasone and poly (3, 4-ethylenedioxythiophene)-polystyrene sulfonate-carbon nanotubes coatings on glassy carbon*.", Biointerphases 12 (3), 031002, 2, **2017.**
22. Hirabayashi, M., Huynh, NH, Witsell, S., Perez, A., Sandoval, L., Yamada, N., and **Kassegne**, S., "*In-Vitro Real-Time Coupled Electrophysiological and Electrochemical Signals Detection with Glassy Carbon Microelectrodes*", Journal of the Electrochemical Society 164 (5), B3113-B3121, **2017.**
23. Goshi, N., Narenji, A., Bui, C., Mokili, J., **Kassegne**, S., "*Investigation of Effects of Nucleotide Content on Electrical Characteristics of DNA Plasmid Molecular Wires*", IEEE Transactions on NanoBioscience, Volume PP, Issue: 99, DOI: 10.1109/TNB.2016.2596243, **2016**.
24. Vomero, M, van Niekerk, P, **Kassegne**, S., *et al,* "*Novel Pattern Transfer Technique for Mounting Glassy Carbon Microelectrodes on Polymeric Flexible Substrates*", JMM (Journal of Micromechanics and Microengineering), Volume 26, Number 2, **2016.**
25. Vomero, M., Dryg, I., Maxfield, T., Shain, W., Perlmutter, S., and **Kassegne**, S., "*In-vivo Characterization of Glassy Carbon μElectrodes and Histological Analysis of Brain Tissue after Chronic Implants*", ECS Trans. Volume 72, Issue 1, 91-96, doi: 10.1149/07201.0091**, 2016**.
26. Goshi, N., Vomero, N., Dryg, I., and **Kassegne**, S., "*Modeling and Characterization of Tissue/Electrode Interface in Capacitive μECoG Glassy Carbon Electrodes*", ECS Trans. Volume 72, Issue 1, 83-90, doi: 10.1149/07201.0083**, 2016**.
27. Vomero, Castagnola, E., Maggiolini, E., Ciarpella, F., Rembado, I., Goshi, N., Fadiga, L., **Kassegne**, S., Ricci, D., "*A Direct Comparison of Glassy Carbon and PEDOT-PSS Electrodes for High Charge Injection and Low Impedance Neural Interfaces*", Advances in Science and Technology 102, 68-76, Trans Tech Publications, **2016**.
28. Barr, J., Auro, R., Sam-Soon, N., **Kassegne**, S., Rohwer, F., *et al.* "*Subdiffusive Motion of Bacteriophage in Mucosal Surfaces Increases the Frequency of Bacterial Encounters*", Journal of Proceedings of the National Academy of Sciences of the United States of America (PNAS), DOI: 10.1073/pnas.1508355112, **2015.**
29. **Kassegne**, S., Vomero, M., Gavuglio, R., Hirabayashi, M., Özyilmaz, E., Nguyen, S., Rodriguez, J., Özyilmaz, E., van Niekerk, P., Khosla, A., "*Electrical Impedance, Electrochemistry, Mechanical Stiffness, and Hardness Tunability in Glassy Carbon MEMS μECoG Electrodes*", J. of Microelectronics Engineering, Volume 133, Pages 36–44, **2015**.
30. Hirabayashi, M., Mehta, B., Nguyen, B., and **Kassegne, S.,** *"DNA Immobilization on High Aspect Ratio Glassy Carbon (GC-MEMS) Microelectrodes for Bionanoelectronics Applications*", Journal of Microsystem Technologies, DOI 10.1007/s00542-014-2332-3, **2015**.

31. **Kassegne, S.,** Wibowo, D., Chi, J., Ramesh, V., Narenji, A., Khosla, A., Mokili, J., "*AC Electrical Characterization and Insight to Charge Transfer Mechanisms in DNA Molecular Wires through Temperature & UV Effects*", Journal of IET Nanobiotechnology, pp. 1–11, doi: 10.1049/iet-nbt.2014.0044, **2014**.
32. **Kassegne, S.,** Mehta, B, Khosla, A., "*Manufacturing of High Aspect-Ratio 3-Dimensional PolyFerroCNT Nanocomposite Polymer Electrodes*", Journal of Microsystem Technologies, Springer, DOI 10.1007/s00542-014-2250-4**, 2014.**
33. **Kassegne**, S., Khosla, A., Patel, D., Paramesh, N., Harwood, N., Arya, B., "*Coriolis Force for Facilitating DNA Molecular Migration and Hybridization in Compact Disk Microfuidic Platforms*", Journal of Microsystem Technologies, Springer, DOI: 10.1007/s00542-014-2087-x, **2014**.
34. Khosla, A., & **Kassegne**, S., "*Fabrication of NdFeB-Based Permanent Rare-Earth Micromagnets by Novel Hybrid Micromolding Process*", Journal of Microsystem Technologies, DOI: 10.1007/s00542-014-2331-4, Springer, **2014.**
35. Vahidi, N., Hirabayashi, M., Mehta, B, Khosla, A., and **Kassegne, S.,** *"Bionanoelectronics Platform with DNA Molecular Wires Attached to High Aspect-Ratio 3D Metal Microelectrodes*'', ECS Journal of Solid-State Science and Technology 3 (3), Q29-36 **2014**.
36. Hirabayashi, M., Mehta, B, Vahidi, N, Khosla, A., and **Kassegne, S.,** *"Functionalization and Characterization of Pyrolyzed Polymer Based Carbon Microstructures for Bionanoelectronics Platform"*, JMM (Journal of Micromechanics and Microengineering), 23 (11), 115001, **2013**.
37. El-Desouky, A., Moon, K.S, **Kassegne**, S.K., and Morsi, K., "*Green Compact Temperature Evolution during Current-Activated Tip-Based Sintering (CATS) of Nickel*", Metals 3 (2), 178-187, **2013**.
38. El-Desouky, A., **Kassegne**, S.K., Moon, K.S., McKittrick, J., & Morsi, K., "*Rapid Processing & Characterization of Micro-scale Functionally Graded Porous Materials*", Journal of Materials Processing Technology, Volume 213, Issue 8, Pages 1251–1257, **2013**.
39. Numula, A., **Kassegne**, S., Moon, K.S., El-Desouky, Morsi, K., *"Reactive Current-Activated Tip-Based Sintering of Ni-Al Intermetallics*", ASM Journal Metallography, Microstructure, and Analysis, 2, 148-155, **2013**.
40. **Kassegne**, S., Moon, K., Martín-Ramos, P., Majzoub, M., Ozturk, G., Desai, K., Parikh, M., *et al*. "*Organic MEMS/NEMS-based High-Efficiency 3D ITO-less Flexible Photovoltaic Cells*", JMM (Journal of Micromechanics and Microengineering), 22 (11), 115015, **2012**.
41. **Kassegne**, S. Kinde, Engeda, S., Kebede, A., Tessema, E., "*Technical Notes: Notes and Proposed Guidelines on Updated Seismic Codes in ET-Implication for Large-Scale Infrastructures*", Zede Journal 28, 91-110. **2012.**
42. Patel, M., Moon, K.S., **Kassegne**, S.K., Morsi, K., "*Effects of Current Intensity and Cumulative Exposure Time on the Localized Current-activated Sintering of Titanium Nickelides*", Journal of Materials Science 46 (20), 6690-6699, **2011**.
43. Frank, M., Moon, K.S., **Kassegne**, S., "*A PMMA coated PMN-PT Single Crystal Resonator for Sensing Chemical Agents*", Smart Materials & Structures 19 (3), 035015, **2010**.
44. **Kassegne**, S.K., Arya, B., Yadav, N., "*Numerical Modeling of the Effect of Histidine Protonation on DNA Hybridization and pH Distribution in Electronically Active Microarrays",* Journal of Sensors and Actuators, Part B. Chemical, Elsevier Science B.V, **2009.**
45. Morsi, K., Moon, K.S., **Kassegne**, S.K., Ugle, R., Villar, E., "*Novel Current-Activated Tip-based Sintering (CATS): Localization of Spark Plasma Sintering*", Scripta Materialia, Volume 60, Issue 9, Pages 745-748, **2009**.
46. Chun, K.S. Wondimu, B., and **Kassegne**, S.K., "*Hybrid/Mixed Assumed Stress Element for Anisotropic Laminated Elliptical and Parabolic Shells",* Journal of Finite Elements in Analysis and Design, Volume 45 (2009), pp 766-781, **2009**.

47. **Kassegne**, S.K. and Chun, K-S **"***Buckling Characteristic of Multi-Laminated Composite Elliptical Cylindrical Shells*", ASC2008 Special Issue of Journal of Mechanics of Advanced Materials and Structures**, 2009.**
48. Nguyen, B. and **Kassegne**, S.K., "*High-Current Density DC Magnetohydrodynamics (MHD) Micropump with Bubble Isolation and Release System",* Journal of Microfluidics and Nanofluidics, Springer-Verlag, Volume 5, 383-393, January **2008**.
49. Zhou, L., Sharma, S., and **Kassegne**, S., "*Reconfigurable Microstrip Rectangular Loop Antennas Using RF MEMS Switches",* Microwave and Optical Technology Letters, Vol. 50, No. 1, pp 252-256, **2008**.
50. Chun, K.S. **Kassegne**, S.K., Park, W-T., "*Static Assessment of Quadratic Hybrid Plane Element Using Non-Conforming Displacement Modes and Modified Shape Functions",* Structural Engineering and Mechanics, Vol. 29, No. 6, 643-658, **2008**.
51. Lemma, F, Denko, M.K. Tan, J., and **Kassegne**, S.K, "*Envisioning a National E-Medicine Network Architecture in a Developing Country: A Case Study",* Int. J. of Healthcare Information Systems and Informatics, 3 (1), pp 44-62, Jan-Mar **2008**.
52. Patel, V, and **Kassegne**, S.K., "*Electroosmosis and Thermal Effects in Magnetohydrodynamic (MHD) Micropumps using 3D MHD Equations",* Journal of Sensors and Actuators B: Chemical, *Elsevier Science B.V*., Volume 122, Issue 1, pp 42-52, **2007**.
53. **Kassegne**, S., "*Development of a Closed-Form 3-D RBS Beam Finite Element and Associated Case Studies",* Journal of Engineering Structures, Elsevier, Volume 29, Issue 7, Pages 1580-1595, July **2007**.
54. **Kassegne**, S.K., "*Proposed Considerations for Revision of EBCS-8:1995 for Conservative Seismic Zoning and Stringent Requirements for Torsionally Irregular Buildings*", EACE Research Journal, **2006**.
55. Chun, K.S., **Kassegne**, S.K., and Park, Won-Tae, "A *New, Efficient 8-Node Serendipity Element with Explicit and Assumed Strains Formulations",* International Journal for Computational Methods in Engineering Science and Mechanics, Vol. 6, pp 285-292, Dec **2005**.
56. Chun, K.S. and **Kassegne**, S.K., "*Low-Velocity Impact Dynamic Behavior of Laminated Composite Nonprismatic Folded Plate Structures",* ASCE Journal of Engineering Mechanics, Vol. 131, Num 7, July **2005**.
57. **Kassegne**, S.K.., and Hailu, D.A., "*Multi-Point Constraint and Mixed Element Based Approach for RBS and Panel Zone Modeling*", EACE Research Journal, September **2004**.
58. Ying, H., Yang, JM., Hopkins, P., **Kassegne**, S.K., Marcus, T., Foster, A., and Howard, H., "*Separation of Simulants of Biological Warfare Agents from Blood by a Miniaturized Dielectrophoresis Device*", Journal of Biomedical Microdevices, Vol. 5, 217-225, July **2003***.*
59. **Kassegne**, S.K., Reese, H., Hodko, D., Yang, JM., Sarkar, K., Smolko, S., Swanson, P., Raymond, D., Heller, M.J., and Madou, M.J., "*Numerical Modeling of Transport and Accumulation of DNA on Electronically Active Biochips*", Journal of Sensors and Actuators B: Chemical, Volume 94, pp. 81–98, Elsevier Science B.V, **2003**.
60. **Kassegne**, S.K. and Reddy, J.N., "*Local Behavior of Discretely Stiffened Composite Plates and Cylindrical Shells*", Composite Structures, Volume 41, pp. 13-26, **1998**.
61. **Kassegne**, S.K. and Reddy, J.N., "*A Layerwise Shell Stiffener and Stand-Alone Curved Beam Element",* Asn. Journal of Structural Engineering, Volume 2, Nos. 1 and 2, pp 1-14, **1997**.
62. **Kassegne**, S.K., Wasti, T., "*Analysis of Box Girders by the Nodal Section Method*", METU Journal of Natural and Applied Sciences, Vol. 22, No 1, pp. 33-59, **1989**.

Guest Editor

Kassegne, S., Keller, S., Sharma, CK., and Madou, M., Guest editor for **Carbon MEMS in Nature Microsystems & Nanoengineering,** a special issue on carbon micro and nanofabrication, Published on December 2, **2019**.

Book Chapters

1. **Kassegne**, Vomero, M., Hirabayashi, M., Van Niekerk, P., Invited review article: "*Micro Electronic Mechanical Devices Collection: Carbon: The Next Silicon?"* Book 2—Applications. Marc J. Madou, Victor H. Perez- Gonzalez, Bidhan Pramanick, Momentum Press Engineering, **2016**.
2. **Kassegne**, S.K. and Arya, B., "*Genomics and DNA Microarrays*", Invited Review Article, Microfluidics and Nanofluidics Handbook, Mitra, S.K., and Chakraborty, S. (editors), CRC Press/Taylor & Francis Group, **2009**.
3. Nguyen, B. and **Kassegne**, S.K., "*DNA Microarrays",* Invited Review Article, Encyclopedia of Microfluidics and Nanofluidics, Dongqing Li (editor), Springer-veritag, **2008**.
4. Wong, S. and **Kassegne**, S.K., "*Protein Microarrays",* Invited Review Article, Dongqing Li (editor), Springer-veritag, **2008**.

Conference Proceedings

1. Istiyanto, J., Lubis, H.F., Adhitama, G., Fadhilah, S., Whulanza, Y., and **Kassegne**, S., "*Bee-Hive Texturing of Carbon Electrode Biosensor Using Screen Printing Method*," AIP Conference Proceedings, **2019**.
2. Phadke, M., Shaner, S., Shah, S., Rodriguez, Y., Wibowo, D., Whulanza,Y., Teriete, P., Allen, J., **Kassegne**, S., "*Inertial Focusing and Passive Micro-mixing Techniques for Rare Cells Capturing Microfluidic Platform*", AIP Conference Proceedings 1933 (1), 040001, **2018.**
3. Huynh, N., Yamada, N., Furukawa, H., Youssef, G., Khosla, A., **Kassegne**, S., "*Effect of Thin Film Platinum Microelectrode Granularity on Corrosion under Electrical Stimulation*", ECS Meeting Abstracts, 1064-1064, 1, **2017.**
4. Vomero, M., Castagnola, E., Ordonez, J., Carli, S., Zucchini, E., Maggiolini, E., Gueli, C., Goshi, N., Ciarpella, F., Cea, C., Fadiga, L., Ricci, D., **Kassegne**, S., Stieglitz, T., "*Improved Long-Term Stability of Thin-Film Glassy Carbon Electrodes through the Use of Silicon Carbide and Amorphous Carbon*", Neural Engineering (NER), 2017 8th International IEEE/EMBS Conference, **2017**.
5. Wibowo, D., Narenji, A., **Kassegne**, S., "*Temperature Gating and Competing Temperature-Dependent Effects in DNA Molecular Wires*", AIP Conference Proceedings 1817 (1), 020003M, **2017**.
6. Hirabayashi, M., **Kassegne**, S., "*Notes on Neuroplasticity Investigation using Coupled Electrical and Electrochemical Sensing through Carbon Electrodes*", 229th ECS Meeting, San Diego, CA, **2016**.
7. Narenji, A.G., Goshi, N., Coste, M., Burns, D., Lee, R., Ngo, K., Purse, B., and **Kassegne**, S., "*Electrochemical Characterization of Synthetic Hybrid DNA Molecular Wires***",** 229th ECS Meeting, San Diego, CA, **2016**.
8. Takamatsu, K., Yamada, N., Wada, M., Ahmed, K., Kawakami, M., Kassegne, S., Furukawa, H., Khosla, A., "*3D Printed Polymer MEMS*", ECS abstract MA2016-02 **3861, Issue 51, 2016.**
9. Narenji, A., Goshi, N., Bui, C., Mokili, J., and **Kassegne**. S., "*Effect of Temperature and UV Illumination on Charge Transport Mechanisms in DNA.*" In *SPIE Smart Structures and Materials+ Nondestructive Evaluation and Health Monitoring*, pp. 94340C-94340C. International Society for Optics and Photonics, **2015**.

10. **Kassegne**, S.K., Hirabayashi, M., Vomero, M., "*Coupled Electrical and Neurotransmitters Signal Sensing and Stimulations using Carbon Multi-Site Electrode Array,*" Symposium J: Materials for Neural Interfaces, MRS Fall 2013 Meet, Boston, MA, December, **2013**.
11. Hirabayashi, M., Mehta, B., **Kassegne**, S., and Khosla, A., '*Electrochemical Characterization of DNA Attachment on Graphitic Carbon Microelectrodes for Bionanoelectroics Platforms*', 224th ECS Meeting, San Francisco, CA, November, **2013**.
12. Vahidi, N., McDowell, T., and **Kassegne**, S., *'Carbon-MEMS Based Multi-Site Electrode Array Fabric for Neural Sensing & Recording*', 224th ECS Meeting, San Fran., CA, **2013**.
13. Khosla, A., Hirabayashi, M., **Kassegne**, S., and Silvestro, M., *'Fabrication and Application of World's Smallest Polymer Bonded Permanent Rare Earth Micro-magnets for MEMS/NEMS Devices',* 224th ECS Meeting, San Francisco, CA, November, **2013.**
14. Waynelovich, J., Seperi, A., Mehta, B., **Kassegne**, S., and Khosla, A., "*Low Cost UV Laser Direct Write Photolithography System for Rapid Prototyping of Microsystems*", ECS Meeting Abstracts, 3990-3990, Hawaii, HI, **2012**.
15. Khatri, A., **Kassegne**, S., Khosla, A., "*Characterization and Process Optimization of UV Patternable Electrically Conducting SU-8 Silver Nanocomposite Polymer*", ECS Meeting Abstracts, 4007-4007, Hawaii, HI, **2012**.
16. Patel, C., **Kassegne**, S., Khosla, A., "*Micropatternable, Electrically Conducting Polyaniline Photoresist Blends for MEMS Applications*", ECS Meeting, 4009-4009, Hawaii, HI, **2012**.
17. Hirabayashi, M., Mehta, B., **Kassegne**, S., Khosla, A., "*Functionalization of Pyrolyzed Carbon Structures for Bio-nano-electronics Platforms*", ECS Meeting, 3879-3879, Hawaii, **2012**.
18. Moon, K., Morsi, K., **Kassegne**, S., Sepehri, A., and Murray, T., "*Mechanical Vibration Induced Electro-spinning of Polyvinylidene Difluoride (PVDF)*", Procee. of SPIE 8342, 834227, **2012**.
19. Moon, K., Patel, M., Morsi, K., **Kassegne**, S., "*Fabrication of TiNi Shape Memory Alloy Thin Films by Current Activated Tip-based Sintering (CATS*)", SPIE Smart Structures and Materials+ Nondestructive Evaluation and Health. **2010**.
20. Morsi, K., Moon, K., **Kassegne**, S., Ugle, R., Patel, M., "*Novel Current Activated Tip-based Sintering (CATS) of Advanced Materials*", 2010 TMS Annual Meeting & Exhibition, Proceedings Title: EPD Congress: Materials Processing Fundamentals, **2010**.
21. **Kassegne**, S.K., Wondimu, B., Mazjoub, M., and Shin, J., "*High-Efficiency Microarray of 3-D Carbon MEMS Electrodes for Pathogen Detection Systems",* SPIE-ISOT Conference Proceedings, San Diego, CA, November **2008**.
22. Frank, M., Nguyen, T.T., Makau, F.M., Moon, K.S., **Kassegne**, S.K., "*PMN-PT Single Crystal Resonators for Sensing Acetone Vapors",* SPIE-ISOT Conference Proceedings, San Diego, CA, November **2008**.
23. Moon, K, **Kassegne**, S., Morsi, K., Yi, J., Beyene, A., *"Low-cost Polymeric and Carbon-based Photovoltaic cells for Clean Energy Applications",* The 5th International Congress of Nano-Bio Clean Tech, San Francisco, CA, October **2008**.
24. **Kassegne**, S.K., Kidane, T., Assefa, A., Denko, M., "*Mobile Text and Instant Messaging Solutions in Non-Latin Scripts for Commodity Price Information Management in Emerging Markets*", 2nd IFIP International Symposium on Wireless Communications and Information Technology in Developing Countries, Pretoria, South Africa, October, **2008**.
25. **Kassegne**, S., "*Lessons from Virtual Supervision of Engineering and Computer Science Graduate Students – Case of Addis Ababa Ababa University",* 36th ASEE/IEEE Frontiers in Education Conference, San Diego, CA, October 28 – 31, **2006**.
26. Lemma, F, Denko, M.K. and **Kassegne**, S.K, "*Hierarchical Model Based LAN Architecture & VSAT-based WAN for a National Telemedicine Network in a Developing Country",* Proceedings of WCIT 2006/WCC 2006, Santiago, Chile, August **2006**.

27. Wang, C., Taherabadi, L., Jia, G., **Kassegne**, S., Zoval, J., and Madou, M., "*Carbon-MEMS Architecture for 3D Microbatteries",* Proceedings of SPIE-Photonics Europe, Strasbourg, France, April **2004**.
28. **Kassegne**, S., Abebe, S., Seoum, T., Atnafu, S., "*Ethiopic Keyboard Mapping and Predictive Text Inputting Algorithm in a Wireless Environment*", ITES-2004, Addis Ababa, Ethiopia, **2004**.
29. **Kassegne**, S.K. and Sarkar, K., "*Challenges in Computational Modeling of Gel Permeation Layers in BioMEMS Devices",* Proceedings of the SIAM Conference on Computational Science and Engineering (SIAM CSE03), San Diego, CA, February 10-13, **2003**.
30. **Kassegne**, S.K., "*Issues in Seismic Zoning and Proposed Reconsiderations in Seismic Building Codes in ET*", Proceedings of the Joint EACE-AAU International Conference on Computational Mechanics, Structures and Earthquake Engineering (ICCMSE-2003), Addis Ababa, Ethiopia, January 9-10, **2003**.
31. Hailu, D., Zekaria, A., **Kassegne**, S.K., "*A New Efficient Multiple-Node Constraint Approach for FEA Analysis of Radius-Cut RBS Moment Frames in Highly Seismic Areas*", Proceedings of the Joint EACE-AAU International Conference on Computational Mechanics, Structures and Earthquake Engineering (ICCMSE-2003), Addis Ababa, ET, January 9-10, **2003**.
32. **Kassegne**, S.K., Reese, H., Swanson, P., Sarkar, K, and Madou, M.J., "*A Micro Electro-Optical DNA Array Sensor",* Full Paper Published in the Proceedings of the SPIE Conference on Smart Structures and Materials, San Diego, CA, March 17-21, **2002**.
33. **Kassegne**, S.K., Zoval, J., Maher, B., Whitten, R., and Madou, M.J., "*Design Issues in SOI-Based High-Sensitivity Piezoresistive Cantilever Devices",* Full Paper Published in the Proceedings of the SPIE Conference on Smart Structures and Materials, San Diego, CA, March 17-21, **2002***.*
34. Sarkar, K, **Kassegne**, S.K., and Madou, M.J., "*Characterization of Porous Membrane Elements in Microfluidics Devices",* 14th US National Congress of Theoretical and Applied Mechanics Conference, Blacksburg, Virginia, June 23-28, **2002**.
35. **Kassegne**, S.K., Buriek, L., and Miller, A., *"Second Order Analysis of Building and Industrial Structures*", Structural Engineer, London, UK. February **2001***.*
36. **Kassegne**, S.K. and Quarshie, S., "*Architecturing Multiphysics FEA/BEA Simulation Software: A Case of Micro Devices Simulation*", Proceedings of the Sixth U.S. National Congress on Computational Mechanics*,* Dearborn, Michigan, August **2001**.
37. **Kassegne**, S.K. and Quarshie, S., "*Object-Oriented Interactive Optimization Tool for Analysis and Design of Plates and Shells*", Proceedings of Fifth U.S. National Congress on Computational Mechanics, Denver, Colorado, August **1999**.
38. **Kassegne**, S.K., "*Second Order Effects in Building Structures with Partial and Multiple Diaphragms*", Proceedings of the 12th Engineering Mechanics Conference, La Jolla, California, May 17-20, **1998**.
39. **Kassegne**, S.K. and Donnadieu, A., "*Seismic Analysis of Buildings using the RAM Structural System",* Presented at the Mexican Society of Seismic Engineering Meet in Mexico City, Mexico, April 22, **1998**.
40. **Kassegne**, S.K. and Somanath, N., "*Analysis of Plates and Shells with Cut-outs Using Layerwise Theory",* 34th Conference of Structures, Dynamics and Materials (SDM)*,* La Jolla, California, **1993**.
41. **Kassegne**, S.K. and Reddy, J.N., "Analysis of Discretely Stiffened Laminated Cylindrical Shells", *Proceedings of MEET'N'93*, Univ. of Virginia, Charlottesville, Virginia, June **1993**.

Miscellaneous Publications

1. Debrework Zewdie, Alemayehu Teferra, Samuel Kinde **Kassegne**, Zegeye Chernet, Shifferaw Taye, Assefa Hailemariam, Ayenew Ejigou, Teferra Mengesha, Mentewab Ayalew, Teshome Abebe, Yilkal Abate, "Blue Ribbon Panel Report - *ETHIOPIA2050 Challenges and Opportunities", **2020**.*
2. Abdissa Lemma, Amare Mergia, Asrat Worku, Deres Tesfaye, Eyob Berhane, Hundessa Demsash, Mahder Tadesse, Samuel Kinde **Kassegne**, Shifferaw Taye, Tesfaye Workneh, Rodas G. Seyoum, "*ETHIOPIA2050 Challenges and Opportunities - Launch Document*", **2019**.
3. **Kassegne**, S.K., and Engeda, S., "*Fixing Gilgel Gibe II – Engineer's Perspective*," March **2010**, Feature Story, MediaEthiopia. Reprinted at Addis Fortune Weekly, AA, Eth, With Samson Engeda, **2010.**
4. **Kassegne**, S.K., "*Paul Kagame in Vegas, Menelik's First Phone, and Struggle for ICT in Ethiopia*" March 2008, Feature Story, MediaEthiopia. Reprinted Nazret.com, **2008**.
5. **Kassegne**, S.K., "*Internet in Ethiopia – Is Ethiopia Off-line or Wired to the Rim*?", November **2007**, Feature Story, MediaEthiopia.
6. **Kassegne**, S.K., "*Internet in Ethiopia Revisited – A Mixed Bag of Progress and Opportunities on-Hold*," Feature Story, MediaEthiopia. Reprinted at Balancing Acts, London, UK, April **2002**.
7. **Kassegne**, S.K., "*Earthquake Risks in Addis Ababa And Other Major Ethiopian Cities – Will the Country Be Caught Off-Guarded?"* Feature Story, MediaEthiopia, April **2002**. Reprinted in Addis Tribune, AllAfrica.com (Washington, DC, USA), Reformatorisch Dagblad (Holland), and Brooke Pattrick's Building Africa (Bedfordview, South Africa), **2002**.
8. **Kassegne**, S.K., "*Internet in Ethiopia: Challenges and Prospects*," Feature Story, MediaEthiopia. Reprinted at Balancing Acts, London, UK, February **2001**.
9. **Kassegne**, S.K., Kifle, Samson and Kidane, Ted, "*Responding to a New Challenge: The Case of Telecom Policy in Ethiopia*," British Council Conference on Communication Technologies and Development, Addis Ababa, Ethiopia, June 18-20, **2001**.
10. **Kassegne**, S.K., "*Basics of Computer-Assisted Analysis of Building and Industrial Structures*," online course material (s105) for PDHonline.org, McLean, Virginia, **2001**.
11. **Kassegne**, S.K., "*Practical Dynamic Analysis and Design for Engineers and Architects*," online course material (g109) for PDHonline.org, McLean, Virginia, **2001**.
12. **Kassegne**, S.K., "*Wind-Tunnel Test and Dynamic Analysis*," RAM eJournal, Carlsbad, CA, March 1999.
13. **Kassegne**, S.K., "*Accidental Torsion in Dynamic Analysis*," RAM eJournal, Carlsbad, CA, March 1999.
14. **Kassegne**, S.K., "*Interpretation of Results from Dynamic Analysis*," RAM eJournal, Carlsbad, CA, July 1999.
15. **Kassegne**, S.K., "*Modeling Truss Systems with Gravity and Lateral Load Considerations*," RAM eJournal, Carlsbad, CA, October 1999.
16. **Kassegne**, S.K., "*Gaining Insight to Building Behavior through Energy Methods*," RAM eJournal, Carlsbad, CA, November 2000.

Invited Lectures/Talks/Seminars

1. **Keynote Speaker**, C-MEMS 2022, "*Carbon is a Natural Fit for Interfacing with the Human Body – Pushing the Carbon Envelope through New Insights From Molecular Dynamics Modeling*", DTU, Copenhagen, Denmark **2022**.
2. **Invited Speaker**, Gordon Research Conferences, Neuroelectronic Interfaces Gordon Research Conference, Thousand Oaks, California, March **2022**.

3. **Keynote Speaker**, C-MEMS 2021, "*Can Molecular Dynamics Simulation offer New Insights to Formation of Nanostructures and Functional Groups in Glassy Carbon?*" KIT, IMT, Germany (Zoom), **2021**.
4. **Keynote Speaker**, Tec.Nano 2019 & C-MEMS 2019, "*Why Carbon is a Compelling Material for Multi-Modal Neural Probes for Long-Term Electrical Stimulation, High-Resolution Recording and Neurochemical Detection*," Monterrey, Mexico, **2019**.
5. **Invited Speaker**, KAUST Research Conference on New Trends in Biosensors and Bioelectronics, "*Carbon and the Future of Multi-Modal Neural Interfaces,*" **2019**.
6. **Keynote Speaker,** C-MEMS 2018: New Horizons, Fourth International Carbon-MEMS Meeting, Hyderabad, India. **2018.**
7. **Speaker**, Seminar, "*Carbon-Based Multi-Modal Neural Interfaces for Simultaneous Long-Term Electrical Stimulation and High-Resolution Neurotransmitter Detection***,"** University College Dublin (UCD) School of Chemistry, Dublin, Ireland, **2018**.
8. **Speaker**, Seminar, "*New Frontiers for Carbon – Interfacing with the Brain*," Center of Biomedical Engineering, Addis Ababa University, Addis Ababa, Ethiopia, **2018**.
9. **Speaker,** Seminar, "*Opportunities in BCI (Brain Computer Interface) - Next Wave of Innovations at the Nexus of Life Sciences & Engineering*," UCSD Bioengineering Day, **2017.**
10. **Speaker**, Seminar, "*Glassy Carbon Microelectrodes for High Charge Injection, High Stability and Low Noise Neural Interfaces*," Instituto de Biofísica e Engenharia Biomédica Faculdade de Ciências da Universidade de Lisboa, Portugal, Ocober **2016**.
11. **Speaker**, Seminar, "*Glassy Carbon Microelectrodes for High Charge Injection, High Stability and Low Noise Neural Interfaces*," EPFL, Lausanne, Switzerland, October **2016**.
12. **Speaker**, "*High-Efficiency 3D Flexible Photovoltaic Cells for Building-Integrated Applications*," Workshop on Energy and Water Resources in Imperial Valley, California, **2016**.
13. **Keynote Lecture,** 3rd International Conference on Smart Systems Engineering, SmaSys, Yonezawa, Yamagata, Japan, "*New Generation of Neuroprosthetics Probes Using Glassy Carbon-Based Microelectrodes for Bi-directional Brain Computer Interfaces,*" **2015**.
14. **Keynote Speech,** SPIE Photonics West, Microfluidics, BioMEMS, & Medical Microsystems XIII 2014, San Francisco, "*Mechanical Stiffness, Hardness, AC Impedance, and Electrochemical Tunability in Glassy Carbon MEMS Microelectrode Structures*", **2015.**
15. **Keynote Speech,** 2014 ECS and SMEQ Joint International Meeting, Cancun, Mexico, *"Long Term Effects in Electrical Property of DNA Molecular Wires: Temperature, Electric Field, and UV Irradiation",* October **2014.**
16. **Keynote Speech,** 7th National Congress of Biomechanics, Suleyman Demirel U, Isparta, Turkey, *"New Generation of Neural Prosthetics using Glassy Carbon-based Micromachined Microelectrode Arrays,"* October **2014.**
17. **Keynote Speech,** 13th Annual National Conference on Mechanical Engineering (SNTTM XIII), University of Indonesia, Jakarta, Indonesia, *"Recent Advances in BioMEMS – Neurochips to Bionanoelectronics,"* October **2014.**
18. **Invited Talk,** ITU (Istanbul Technical University) – Nanotechnology Research Center, Istanbul, Turkey, **"***System on Flexible Substrate*", October **2014.**
19. **Invited Talk,** DFG-NSF Workshop New Perspectives of Neurotechnology and Neuroengineering, NSF Headquarter, Arlington, Virginia, November **2014**.
20. **Invited Talk**, Denmark Technical University (DTU), Department of Micro & Nano-Technology, Lyngby, Denmark, "*AC Electrical Characterizations of DNA Molecular Wires: New Insights through AC Input, Temperature, and UV Oxidation Experiments*", **2014**.

21. **Keynote Speech,** 224th ECS Meeting, San Francisco, CA, *"Long-Term Viability of DNA-Based Bionanoelectronics: Studies in Transient Effects on Electrical Property of DNA Molecular Wires",* November **2013.**
22. **Keynote Speech,** SPIE Smart Structures/NDE 2013, San Diego, CA, "*Establishing Electrical Characteristics of DNA Molecular Wires in Carbon-Based Bionanoelectronics Platform*", **2013.**
23. **Invited Talk,** Organic Optoelectronics Group, Universidad Rey Juan Carlos and Materials Science Institute, Madrid, **"***Versatility of Organic MEMS/NEMS: From High-Efficiency 3D Flexible Photovoltaic Cells to Multi-Site Neural Sensing Chips*", July **2012**.
24. **Invited Talk,** IEEE EDS Technical Meeting on Mixed Potential Sensors, Bio-Nano-Electronics & Flexible Photovoltaic Cells, SFU, Vancouver, Canada, "*Versatility of Organic MEMS/NEMS: From High-Efficiency 3-D Flexible Photovoltaic Cells to Bio-Nanoelectronics.*" August **2012**.
25. **Invited Talk,** Mechanical Engineering Department, UC Riverside, "*Protonation and Buffering in Histidine and their Effect in Promoting Nucleic Acid Hybridization in Electronically Active Electrochemical Systems"*, April **2008**.
26. Mechanical and Electrical Engineering Departments, Bahir Dar University, Bahir Dar, ET, Seminar, "*MEMS Devices: Overview and Research and Commercialization Trends",* **2008**.
27. Civil Engineering Department, Addis Ababa University, Seminar, "*Closed-form 3-D Beam FEA for Modeling Steel Buildings with RBS Moment Connections*", July 15, **2007**.
28. Structural Engineers Association of California (SEAOC), Seismology Committee, Los Angeles, CA, Talk, "*Drift Increases in Special Moment Frames with RBS Elements and Stiffness Irregularities",* August 9, **2003**.
29. University of North Carolina at Charlotte, Civil Engineering Department, Structures and Materials Group, Charlotte, NC, "*Areas of Computational Interest in Panel Zone Deformation and RBS Connections*", Seminar, May 2, **2003**.
30. Mechanical and Civil Engineering Departments, Addis Ababa University, AA, ET, "*Trends in Computational Mechanics and Finite Element Methods*", Talk, January **2002**.
31. Eth. Civil Engineers Association, "*Recent Advances in Computer-Assisted Structural Dynamics and Seismic Design*", Talk, January **2002**.
32. Computer Science Department, Addis Ababa University, AA, ET, "*Extensible Markup Language (XML) Localization Issues*", Talk, January **2002**.
33. Electrical and Mechanical Engineering Departments, Addis Ababa University, AA, ET, "*Simulation Issues for MEMS and Nano Devices*", Talk, December **2000**.
34. Civil Engineering Department, Addis Ababa University, AA, ET, "*Computational Methods and Finite Element Analysis for Earthquake Engineering*", Talk, December **2000**.

Major Projects Consulted

1. Design engineering and PE certification for rectangular and cylindrical hyperbaric pressure vessel design (design by rule + design by analysis) for a leading hyperbaric chamber company. Chambers have been installed in Canada, UAE (Dubai), Saudi Arabia, California, Michigan, Nevada, and Mexico **(2008 – Now).**
2. Consulted on Design-by-Rule Engineering Calculations and Design Review of Heat Loss Analysis for a High-rise building with the objective of determining sources and mechanisms of potential unaccounted heat loss of chilled water, as reported by the client (**2015**).
3. Consultant for forensic engineering on crane failure using dynamic analysis (**2014-2016**).
4. Consultant for Feasibility Study of Addis Ababa - Djibouti Section of New Ethiopia Standard-Gauge Railway **(2011 – 2012).**
5. Consultant for Sebeta – Ijaji - Jimma – Bedele railway project in Ethiopia for engineering design with focus on structural design and overall sound engineering practice **(2010 – 2012).**

6. Consulted for Heat Transfer Model for New PCR Tube **(2012).**
7. Consultant for Developing Quality Assurance Guideline for the Development and Purchase of Enterprise Application Software for Enterprise Arch. of Ethiopia (under OmniTech) **(2010 – 2012).**
8. Consultant for Development of Software to Process Online Application for Examination Registration and Placement Service of the Fed. Min. of Education of Ethiopia (under OmniTech). **(2009 – 2010).**
9. Consulted on MEMS accelerometer technology covering overview of the technology as well as devising a strategy in identifying the process, material, physics, and signal measurement and conditioning used in a given MEMS accelerometer for Cooley Godward Kronish LLP Law Firm (**2008**).
10. Outgassing (diffusion & convection) modelling of container vessels for a leading start-up sensor company in Western US **(2006 – 2010).**
11. Consultant for validation and review of international wireless product for Nokia (**2006**).

Funded Research Grants
Total as Member of Team = ~$40 Million
Total External = ~$1.30 mil
Total External + Internal = ~$1.8 mil

External

1. **Co-PI (Deputy Director)** – National Science Foundation, **$18,500,000** (SDSU gets $0.5 million/year), As part of ERC - CNT (Center for Neurotechnology) led by UW, **2010 – 2015**. Extended to **2016 – 2021 ($38.5 mil total**).
2. **PI** – National Science Foundation, ERC–Center for Neurotechnology (CNT), **$187,436,** *"Neurotransmitter Response to Epidural Spinal Cord Stimulation via Bi-directional Glassy Carbon Neural Interfaces"***, 2019 – 2021.**
3. **PI** – National Science Foundation, ERC–Center for Sensorimotor Neural Engineering (CSNE), **$225,000,** *"Neurotransmitter Detection with Glassy Carbon Microelectrode Array for Spinal Cord Applications"***, 2016 – 2018.**
4. **PI** – Center for Energy Sustainability, **$25,000,** Building Integrated Plastic Solar Cells, **2017-2018.**
5. **PI** – National Science Foundation, ERC–Center for Sensorimotor Neural Engineering (CSNE), **$100,000,** *"Carbon-Based Multi-tunable Microelectrode Array with Flexible & Perforated Substrate for Closed-Loop BCI"***, 2013 – 2015.**
6. **PI** – National Science Foundation, ERC–Center for Sensorimotor Neural Engineering (CSNE), **$100,000,** *"Investigation of Carbon-MEMS Based Multi-Site Electrode Array Fabric for Neural Sensing and Stimulations",* **2011 – 2013**.
7. **PI** – US Navy, ~**$90,000,** Space and Naval Warfare Center Pacific (SPAWAR, SSC-Pacific), SPAWAR - PAC: N66001-12-2, SSC-PAC Advanced MEMS Fabrication, **2013, 2014, 2015** (3-year Program).
8. **Co-PI** – National Science Foundation, CMMI, **$307,000**, "*Novel Current-Activated Tip-Based Sintering*", (Dr. Morsi is the PI. Dr. Moon is the other Co-PI). **2008 – 2011**.
9. **PI** – Department of Energy, CleanTech Initiative, **$45,000,** "*Innovative Production Line for Low-Cost Scale-Up of a Novel 3-D, Flexible, Organic Photovoltaic Cells"*, 2001 – 2012.
10. **PI** – San Diego Foundation, **$35,000**, "*New Enabling Technology for Building-Side-, Auto-, and Cloth-Mountable Flexible Solar Cells using All-Polymer Approach*", **2009 – 2010**.

11. **PI** – AlphaTec Spine Inc., $**37,933**, "*Epidural Thermal Posterior Annulplastic Treatment Device*", **2006 – 2007**.
12. **Co-PI** – AMO Co., Ltd. Kyungkido, Korea. **$40,000**, "*Polymer Light Emitting Diode Chip with 3-D Powder-Sintered Electrodes*", (Dr. Moon is the PI. Dr. Morsi is the other Co-PI), **2009 – 2010**.

Internal [Total = ~$500,000]

1. PI - Center for Nanofabrication and Advanced Manufacturing (CeNAMAN) (at Mission Valley Innovation District), **$40,000**, **2021**.
2. PI – NanoFAB.SDSU Consortium Charge Center, **$15,000,** since **2021**.
3. **PI** – Proposal for Equipment to Support Research, Creative Activities or Core Facility Upgrades, **$200,000,** Nordiko N200 Physical Vapor Deposition System, **2017**.
4. **PI** – President's Leadership Fund, SDSU, **$10,000**, "*Simultaneous Electrical & Neurotransmitter Electrochemical Signal Reading & Stim for PD Treatment* ", **2013 - 2015**.
5. **PI** – SAGE Project, SDSU, **$7,500**, "*Pilot Project: Demonstration of Energy Saving and Sustainability through Building-Integrated Solar Cell for National City Library* ", **2014 - 2015**.
6. **PI** – University Grants Program, SDSU, **$10,000**, "*DNA-inspired Variable-Impedance Carbon Nanotubes for Molecular Electronics* ", **2014 - 2015**.
7. **PI** – University Grants Program, SDSU, **$10,000**, "*Building-Integrated All-Polymer Organic Photovoltaic Cells*". **2013 - 2014**.
8. **PI** - Response to Research Investment Initiative - Facilities and Equipment, **$175,000,** Mask Aligner for SDSU Class 100 Cleanroom, **2013.**
9. **PI** – University Grants Program, SDSU, **$10,000**, "Investigation of New Generation of All-Polymer Organic Photovoltaic Cells". **2009 - 2010**.
10. **PI** – CSUPERB (Biotechnology Funding Program in California), **$15,000**, "*A New On-Chip Three-Dimensional Separator for High-volume and High-Efficiency Molecular Diagnostic Application & Pathogen Separations*", **2008 - 2009**.
11. **PI** – University Grants Program, SDSU, **$10,000**. "*A New Three-Dimensional Manipulator of Biomolecules for High-Efficiency Molecular Diagnostic Application & Pathogen Separations*", **2006 - 2007**.

Awards and Honors

1. Founded and co-founded several technology companies:
    a. Grapheton: 2018 – Present
    b. Edulix: 2000 – Present
    c. Feedelix Wireless: 2004 – 2010.
2. Company I founded (*Feedelix Wireless*) was invited to:
    a. The 2008 International CES – Technology and Emerging Countries Program, Technology and Emerging Countries, Las Vegas, Nevada, 2008.
    b. TEDTalk, Arusha, Tanzania, 2007.
3. 8 Patent Applications. 3 Patents Assigned. Examples:
    a. **Kassegne**, van Niekerk, Vomero, US 2016/0073920 A1, Hybrid Metal and Carbon or Glassy Carbon MEMS u-ECOG Electrode and Microelectrode Structures
    b. **Kassegne**, Nimbalkar, Subramani, PCT/US18/48938, Glassy Carbon Probe and Microfabrication Method
    c. **Kassegne**, Nimbalkar, Castagnola, PCT/US18/48956, Graphene and Glassy Carbon Meta-Material, Microfabrication Method, and Energy Storage Device.
    d. Moon, Morsi, **Kassegne**, Organic photovoltaic cell and light emitting diode with an array of 3-dimensionally fabricated electrodes, Patent number: 8629462.

e. **Kassegne**, S., Abebe, S., Chawla, S., and Kidane, T., METHOD FOR IMAGE PROCESSING-BASED FONT RENDERING FOR MOBILE SETS AND APPLICATIONS.
f. **Kassegne**, S., Abebe, S., Chawla, S., and Kidane, T., METHOD FOR TEMPLATE-BASED CUSTOMIZABLE KEYBOARD MAPPING FOR MOBILE APPLICATIONS.
g. **Kassegne**, S., Abebe, S., Chawla, S., and Kidane, T., METHOD FOR ETHIOPIC/GEEZ SCRIPT KEYBOARD MAPPING FOR MOBILE APPLICATIONS
h. **Kassegne**, S., Abebe, S., Chawla, S., and Kidane, T., METHOD FOR HINDI SCRIPT KEYBOARD MAPPING FOR MOBILE APPLICATIONS.
i. **Kassegne**, S., Chawla, S., and Kidane, T., METHOD AND SYSTEM FOR TRANSMISSION OF MOBILE MESSAGES USING WIRELESS MOBILE INTERNET PROTOCOL.
j. **Kassegne**, S., Abebe, S., METHOD FOR OPEN ARCHITECTURE AND CUSTOMIZABLE ENVIRONMENT FOR NON-LATIN AND MULTI-SCRIPT SMS TEXT MESSAGING

4. Successfully licensed Patent #8,629,462 developed in my Lab with my collaborators, to a commercial entity under two-sets of technologies (Solar & OLED). 2010 and 2012.
5. Selected as **'2012 highlights of JMM' (J of Micr. & Microengg)** and featured at **IEEE MEMS** for "***Organic MEMS/NEMS-based high-efficiency 3D ITO-less flexible photovoltaic cells"*** paper. I am first author; the paper is based on work done in my Lab.
6. 1st Place Award to my grad students in the "*Annual CSU-Wide Student Research Competition*," Long Beach, CA, 2012.
7. President's Award in Research & Scholarship to my grad students in SRS (Student Research Symposium) at SDSU, 2012 & 2014. (**Twice**).
8. AISC Hot Product of the Year (1997) – Awarded by AISC (American Institute of Steel Construction) for RAMFrame™, the FE simulation program I wrote.
9. CIDA (Canadian International Development Agency) Fellowship – For undergraduate studies 1980-1984. Ranked first among 80 applicants.
10. Registered Professional Engineer in the state of California (Reg. No. C59036). Valid in several states in the US.

Media Coverage

1. PR Newswire – Grapheton, Inc. Appoints New CEO, October **2021**.
2. Yahoo! Finance - Grapheton Inc. is Featured on The Stock Day Podcast to Discuss Advanced Neurotechnology Solutions, February **2021.**
3. Eureka Alert - "*Deep brain stimulation safer for patients with new MRI compatible electrode*", Brain-computer interface advancements. November **2019**.
4. Medical Design and Outsourcing "*Could this new MRI compatible electrode advance deep brain stimulation?",* By Danielle Kirsh, November **2019**.
5. The Engineer "*Brain implant electrode material shows MRI compatibility*", November **2019**.
6. Science Daily, "*Microfluidics device captures circulating cancer cell clusters*", **2019**.
7. Futurism, "*Cyborg Brain Electrodes Could Help the Paralyzed Walk Again - We're one step closer to bionic humans*," Dom Galeon February **2017**.
8. Futurism, "*Spinal Injury Patients Could Regain Mobility Through Brain-Computer Interfaces Brain-computer interfaces are on the rise*," Karla Lant, August **2017**.
9. Coverage of NSF – ERC funding by NBC, KPBS, Times of San Diego, **2016**.
10. KPBS TV, "*San Diego State Searches for Breakthrough in Paralysis*", October 2015.

11. San Diego Union Tribune, "*SDSU joins research for futuristic artificial limbs, Grant aimed at wireless technology to develop full dexterity, feeling*," JULY 24, **2011**.
12. Interview with Deutsche Welle, **2010.**
13. Baja California Newspaper, "*Revoluciona SDSU la producción de energía, Esta tecnología abaratará costos y protegerá el medio ambiente, afirman los creadores*,", **2010.**
14. Wired News, "*Progress in Ancient Tongue,"* **2004**.
15. Mail & Guardian, "*Ancient Ethiopian Alphabet Debuts on SMS*," **2004**
16. Press-Coverage (NY Times, Wired Magazine, Cape Times, Guardian, Taipei Times, Textually.org) on Feedelix Wireless, **2004.**
17. Interview with VOA on Ethiopic SMS Technology, **2004.**

Board Membership

1. Member of Board of Directors, SDSU Research Foundation (SDSURF), 2014 – 2019.
2. Advisory Board Member, Ethiopian Journal of Science & Sustainable Development, 2019 - .
3. Scientific Advisory Board Member, TumorGen MDx, Inc. San Diego, CA. Since 2012.
4. Scientific Advisory Board Member, Tissuenetix, San Diego, CA. Since 2012.
5. Scientific Advisory Board Member, B.I Nanotech, Montreal, Canada. Since 2014.

V. SERVICE TO THE UNIVERSITY AND THE COMMUNITY

Service to the University

1. Member, Finance & Investment Committee, SDSURF, 2014 – 2019.
2. Member, URC – University Research Council Committee, January 2012 - 2018.
3. Graduate Advisor, Bioengineering Program, SDSU, January 2013 - Present.
4. Chair, Computational Mechanics Faculty Search Committee, Mechanical Engineering, 2020.
5. Chair, Advanced Manufacturing Faculty Search Committee, Mechanical Engineering, 2019.
6. Chair of the Department RTP committee (2019 – 2020)
7. Chair of the Department RTP committee (2018 - 2019)
8. Member, UCPC – University Copyrights and Patents Committee, March 2007 - 2017.
9. Member, Search Committee for Dean of College of Engineering, SDSU, 2013, 2019
10. Chair, Design Faculty Search Committee, Mechanical Engineering, 2015.
11. Member, Search Committee for Bioengineering Faculty, 2015.
12. Member, Search Committee for Faculty Position for NSF - ERC, SDSU, 2013, 2014.
13. Member, Search Committee for Faculty Position in Controls & Dynamics, SDSU, 2014.
14. Member, Search Committee for Faculty Position in Design, ME Department, SDSU, 2014.
15. Doctoral Faculty in the Joint Doctoral Program with UCSD, April 2007 - Present.
16. Doctoral Faculty in the SDSU Computational Sciences Center, August 2007 - Present.
17. Mechanical Engineering MSME Graduate Program Committee, 2005 - Present.
18. College of Engineering, Student Learning Outcomes Assessment Committee, 06-08.
19. Mechanical Engineering, Faculty Search Committee, 06-07.

Service to the Community

Service on Panels

1. NSF Gen III ERC, Annual SVT (Site Visit Team), **2017, 2018, 2019**.
2. NSF Panel Member, ECCS Faculty Early Career Development (CAREER), **2019**.
3. NSF Panel Member, Advanced Manufacturing (AM) Program (nanomanufacturing). Faculty Early Career Development (CAREER), **2019**.

4. NSF Panel Member, ECCS Faculty Early Career Development (CAREER), **2018**.
5. NSF Gen III ERC, Pre-Award SVT (Site Visit Team), **2016**.
6. NSF Gen III ERC, Pre-Award SVT (Site Visit Team), **2014**.
7. NSF Panel Member, Joint ECCS&DMR on EPMD, **2015**.
8. External PhD Examiner, DTU, Denmark, Department of Micro- and Nano-Technology, **2014**.
9. NSF SVT (Site Visit Team), Gen III, ERC Proposals, **2014.**
10. NSF Panel Member, ECCS-EPDT BioFLEX Proposals, **2012.**
11. NSF SVT (Site Visit Team), NERC – Nanosystems ERC Proposals, **2011.**
12. NSF Panel Member, NERC – Nanosystems ERC Proposals, **2011.**
13. NSF Panel Member, Gen 3 - ERC Proposals, **2011**.
14. NSF Panel Member, ECCS-EPDT Proposals, February **2008**.
15. NSF Panel Member, Renewal site visit to the NSEC *Center for Hierarchical Manufacturing* (CHM) at the University of Massachusetts, Amherst, **2007**.
16. NSF Panel Member for NIRT Proposals in Hierarchical Nanomanufacturing, **2007**.
17. US CRDF (Civilian Research & Development Foundation) Grants Program, **2001/07/08**.
18. CCAT Grants Program, **2007**, **2008**.

Service in Professional Conferences

1. Co-organizer, ETHIOPIA 2050 Grand Challenges & Opportunities, Addis Ababa, Ethiopia, **2019**.
2. Organizer, C-MEMS 2018 International Conference on Carbon MEMS that was jointly hosted by San Diego State University (SDSU) and CETYS in Baja California, San Diego, CA and Mexicali, Mexico, June 10 - 12, **2018.**
3. Organizing Committee Member, SPIE Smart Structures/NDE 2014, San Diego, CA, **2014**.
4. Session Chair, SPIE Photonics West, San Francisco, CA, **2013**.
5. Session Chair, SPIE Smart Structures/NDE 2013, San Diego, CA, **2013**.
6. Session Chair, 224th ECS Meeting (October 27–November 1, 2013), San Francisco, CA.
7. Symposium Co-Chair, SPIE International Symposium on Optomechatronic Technologies, (ISOT 2008), San Diego, CA, U.S.A, 17-19 November **2008**.
8. Program Committee Member, International Symposium on Ubiquitous Multimedia Computing (UMC-08), Hobart, Australia, October 13 - 15, **2008.**
9. Program Committee Member, IFIP World IT Forum (WITFOR), Addis Ababa, ET, **2007**.
10. Conference Co-organizer, EACE International Conference on Earthquake Engineering, Computational Mechanics, Geotechnical and Transportation Engineering (ICEEMGT-03 Conference), Addis Ababa, Ethiopia, **2003.**
11. Co-organizer and Program Co-chairman, Mini-symposia on Computational Modeling of BioMEMS, SIAM Conference on Computational Science and Engineering (SIAM CSE03), San Diego, CA, February 10-13, **2003**.
12. Session Chair, "Smart Structures and Integrated Systems - Control of Smart Structures", SPIE Conference on Smart Structures and Materials, San Diego, CA, March 20, **2002**.

Service in Journal Reviews

1. Journal of Neural Engineering
2. ECS (Electrochemical Society) Journal
3. Applied Physics Review
4. Journal of Micromechanics and Microengineering, JMM

5. SPIE Journal of Micro/Nanolithography, MEMS, and MOEMS
6. Journal of Sensors and Actuators, Part B. Chemical
7. Journal of Microfluidics and Nanofluidics
8. IEEE Journal of Selected Topics in Quantum Electronics
9. Journal of Materials Processing Technology
10. Journal of Engineering Structures
11. International Journal of Energy Research
12. Nature Microsystems and Nanoengineering

Thesis Advisees
[Past 18 years: Graduated 100 graduate students; ~20% women]

Mechanical Engineering and Bioengineering				
Abhi Gautam	Chandrakanth Konidala	Kadir Toksoy	Neha Chowdhry	Sebastian Shaner
Abhishek Khatri	Charles Chau	Krishna Desai	Nha Uyen Huynh	Sebastien Nguyen
Alex Teeter	Chaz Bruckman	Kunal Chowdhry	Nick Gong	Shanel Miller
Ali Moghadasi	Chintan Patel	Manisha Phadke	Nick Sam-soon	Shreyas Shah
Amandeep Singh	Chris Bui	Maria Vomero	Nitesh Paramesh	Steve Wong
Amish Rohatgi	Claudia Cea	Michael Cao	Nitin Harwood	Surabhi Nimbalkar
Amrutesh Vyas	Colin O'Neill	Michael Quincena	Noah Goshi	Taher Barbhaiwala
Anson Hu	Denni Wibowo	Mieko Hirabayashi	Pieter van Niekerk	Trevor Hunt
Arvind Balasubramani	Eric Sierks	Mihir Parikh	Priya Varma	Vaibhav Patel
Ashish Gaikwad	Farbod Amirghasemi	Mihir Patki	Rijkaard Mendonca	Varsha Ramesh
Bao Nguyen	George Thomas	Mike Frank	Roberto Gavuglio	Vinot Vijayaraghavan
Barry Tidmore	Gunay Ozturk	Mohammad Majzoub	Ryan Burks	Vivian Nguyen
Beejal Mehta	James Chi	Namrata Tata	Sahil Patel	Will Millar
Berhanu Wondimu	Jasmeet Singh	Nasim Vahidi	Saravana Pichaikani	Yasna Behmardi
Bhuvnesh Arya	Jiae Shin	Neeraj Yadav	Scott Seidman	Ygnacio Rodriguez
Brandon Coetzee	Kevin Paguera	Marina Buezo	Ryan Butler	Zachariah Walker
Brinda Cariappa	Sandra Lara	Mario Vazquez	Rita Youkhana	Zaid Karim

PhD Students Graduated
1. Mieko Hirabayashi
2. Alaleh Narenji
3. Surabhi Nimbalkar

PhD Student Advising
Adama Science and Technology University (Adjunct Professor – Appointed in September 2022)
Currently supervising the PhD thesis of two candidates:
1. Biftu Hailu
2. Kidu Gebrecherkos

Addis Ababa University (AAU)
1. Dawit Hailu, PhD, Completed MS Thesis at AAU in 2004 (Civil Engineering)
2. Shiferaw Abebe, MSc, 2004 (Computer Science)
3. Fikreyohannes Lemma, MSc, 2004 (Computer Science).

MS Thesis Advisees in Computer Science, ECE, and Aerospace Engineering

Computer Science (SDSU)	Electrical & Computer Engineering (SDSU)	Aerospace Engineering (SDSU)
1. Ashish Gupta 2. Gaurav Kumar 3. Dhruv Basin 4. Aditya Kappagantula 5. Akash Kengunte 6. Vyshak Athreya	1. Dr. Lei Zhou 2. Anurag Kaushik	Dhruv Patel

PAUSTI - Pan African University
Mekila Mbayam Olivier, MSc, 2020 (Department of Mechanical Engineering, Institute for Basic Sciences Technology and Innovation (PAUSTI), Nairobi, Kenya).

Visiting Scientists/Professors/Post-Docs
1. Dr. Elisa Castagnola – Post-Doc from IIT – Ferrara, Italy.
2. Dr. Ajit Khosla – Visiting Professor, Yonezawa University, Japan
3. Dr. Mireille Delhase (Belgium)
4. Dr. Min Kweon – Senior Visiting Scientist
5. Dr. Mike Frank – Senior Visiting Scientist
6. Professor Shifferaw Taye – Visiting Professor, Addis Ababa University
7. Professor Hidemitsu Furukawa – Visiting Professor, Yonezawa University, Japan.
8. Professor Mulusew Tibebu – Visiting Professor, Assistant Professor, Black Lion Hospital, Addis Ababa University.

External Doctoral Committee Member/Examiner
1. Letizia Amato (DTU, Denmark)
2. Yasmin M. Hassan (DTU, Denmark)
3. Qi Cai (UCD, Ireland)
4. Aung Thih (University of Malaya, Malaysia)
5. Shah Mukim Uddin (University of Melbourne).

Visiting Students (Post-Bac & Grad)	Undergraduate Research Students (out of 45+)
1. Alexandro Vomero (Italy)	1. Alberto Larrazolo
2. Anna Li Rasmussen (DTU, Denmark)	2. Alberto Perez
3. Carlos Larrea (Spain)	3. Alexis Oyawale
4. Pablo Martin Ramos (Spain)	4. Arjun Shankar
5. Donald Bryson (Uni. of Strathclyde Glasgow)	5. Diego Chavez (ANSWER – SPAWAR)
6. Gavin Kydd (Uni. of Strathclyde Glasgow)	6. Dominick Polese
7. Jack Waddell (Uni. of Strathclyde Glasgow)	7. Elizabeth Izaguirre (ANSWER – SPAWAR)
8. Liam Slimmon (Uni. of Strathclyde Glasgow)	8. Jack Tomley
9. Matthew Morris (Uni. of Strathclyde Glasgow)	9. Jaco va Niekerk
10. Gerro Gueli (University of Freiburg, German)	10. James Bunnell (ANSWER – SPAWAR)
11. Eda Özyilmaz (ITU,Turkey)	11. Jesus Rodriguez
12. Emre Özyilmaz (ITU,Turkey)	12. Josef Barho
13. Felipe Laydner Laydner (Brazil)	13. Julia Calish
14. Manuella Padilha (Brazil)	14. Kyle Logan

15. Luc Saturnin Pity (France) 16. Naoya Yamada (Yonezawa University) 17. Rhea Montgomery-Walsh (Tufts) 18. Sarah Wang (CNT – REU, Harvey Mudd College) 19. Victoria Dahl (CNT – REU, UW)	15. Laura Sandoval 16. Omar Nuñez Cuacuas 17. Rene Arvizu 18. Renee Tidmore 19. Saray Robles 20. Shane Witsell 21. Tri Nguyen 22. Zach Achen 23. Saja Sinnawi 24. Sara Herrera 25. Emily Jacobo 26. Jason Nguyen 27. Christine Nguyen 28. Kathryn Naretto 29. Lindsey Macleod 30. Olivia Towers 31. David Spencer Owen 32. Leo Zuniga