One-day Workshop: Wireless Power Transfer

March 13th, Thursday, 2014, 8:15 AM ~ 7:00 PM

ANSYS, Inc.

University of Michigan – Dearborn, GATE Center for Electric Drive Transportation

IEEE Transportation Electrification Initiative; IEEE Southeastern Michigan Section

Invitation: Every year significant advancements are made in the 'electrification' of the powertrain systems that propel consumer vehicles, commercial trucks, off-highway vehicles, and aircraft. Continuous innovation in motor technology, power electronics, battery design, and overall system integration is delivering vehicles that safely travel previously unimaginable distances with reduced or no reliance on fossil fuels.

Wireless power transfer is increasingly and more widely used in recent years. As wireless communications have changed and dominated our lives and business dramatically, wireless power can be expected to meet the desire of people to get free from wires and fear of battery discharge. Different from the wireless communications, however, wireless power needs much more innovations and efforts to open the ubiquitous wireless power era. To promote the development of wireless power technologies, the workshop on wireless power sponsored by IEEE, ANSYS, and the GATE Center for Electric Drive Transportation will be held at the University of Michigan-Dearborn, in Dearborn, Michigan, USA. Seven distinguished speakers will discuss the latest progress in wireless charging for electric vehicle applications. A panel will be organized comprised primarily of industry speakers. Join us for this 1-day workshop on Thursday, March 13th, 2014, featuring experts on Wireless Power Transfer for hybrid and electric vehicles. We hope to see you there.

Location:

University of Michigan – Dearborn

Institute for Advanced Vehicle Systems
4901 Evergreen Road,
Dearborn, Michigan 48128
Registration site: http://www.cvent.com/d/74q1q1/1Q

Cost: $100, including breakfast, lunch, and evening reception

Program

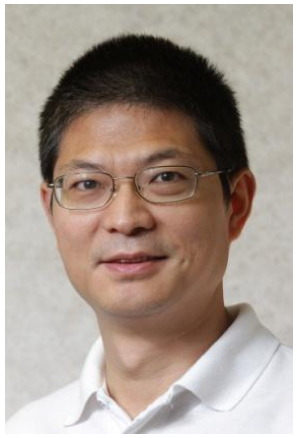
Time	Title/Speaker	Abstract
8:30 – 9:00	***Registration/Breakfast***	
9:00 – 9:15	Welcome and Introduction	
Morning Plenary Session, Chair: Dr. Chris Mi		
9:15 – 10:00	Wireless Charging Systems for EV's By: John M. Miller, Ph.D, Fellow IEEE IEEE Distinguished Lecturer (previously distinguished staff at ORNL)	Wireless power transfer (WPT) has roots in Nikola Tesla's investigation of wireless transmission of power in the 1890's using some rather extreme methods. Modern WPT owes its resurgence to Prof's. André Kurs, Marim Soljačić, and the MIT team that demonstrated transmission of 60W across 2.5m to illuminate a light bulb (Science 2007) because this article and demonstration so caught the imagination of engineers. Many others worked on inductive power transfer (IPT) even before this, most notably the team at Auckland University in New Zealand. The sheer convenience of WPT coincided with standardization activities of conductive charging for EV's so interest grew very fast. In 2010 the Society of Automotive Engineers (SAE) formed the SAE J2954 wireless charging task force. Over the interim, R&D of WPT has grown exponentially, and today it is being offered as an aftermarket option for EV charging. This talk will cover the essentials of WPT, its performance and efficiency, and what it will take to increase charging levels from passenger cars (3.3 kW to 20 kW) to heavy duty vehicles (20 kW to >200 kW). The presentation will also cover dynamic WPT – charging while in-motion.
10:00 – 10:30	The R&D History of On-Line Electric Vehicles (OLEV) Chun T. Rim KAIST, Korea	The design procedure, analysis method, experimental verification results, and recent deployment status for the On-Line Electric Vehicles (OLEV) will be presented. As a successful example of inductive power transfer (IPT) application to EV, key technical results in developing the OLEV will be provided; they are 20cm air-gap with 83% system power efficiency, and 20cm lateral displacement, which improved PATH team's previous records of 7.6cm, 60%, and 10cm, respectively. There are five generations of OLEV developed so far, and they are revealed including the most recently developed I-type and S-type OLEV.
10:30 – 11:00	***Coffee break***	
11:00 – 11:30	Simulation-Driven Product Development for Wireless Power Transfer Scott Stanton, Technical Director for Advanced Technology Initiatives, ANSYS, Inc.	Wireless power transfer is of special interest to electronics engineers who need to address usability and safety in designing charging technology. This technology started with small mobile devices such as cell phones and laptop PCs; it is now applied to automotive EV charging systems, which require larger power capacities in a very limited space. The key component is a loosely coupled transformer with large air gap needing coupled electromagnetic field analysis and circuit simulation for its design. The full solution of the wireless power transfer problem requires a systems-level approach with dynamically linked parameters between the circuit and 3-D magnetic FEA model. This presentation introduces wireless power transfer simulation using ANSYS Maxwell and ANSYS Simplorer, including a specific example of the magnetic resonance type used in electric vehicles.

11:30 – 12:00	Optimization of a high power wireless EV charger Hai Jiang, Ph.D, PhD Research Engineer, Underwriters Laboratory, LLC	Wireless power transfer at high power level (3.3kW) and large distance (>200mm) are studied. The coil design is optimized using numerical tools – ANSYS Maxwell. The study compare different size and shape of coil design. We investigated and compared the coil topologies including unipolar, bipolar and multipolar designs. We compare the impact of various misalignment of the coil, including gap distance, lateral and longitudinal misalignment, and angular misalignment. The near field impact on human bodies are briefly discussed.
12:00 – 13:30	***Network Lunch***	
Afternoon Plenary Session, Chair: Dr. John Miller		
13:30 – 14:00	Methods for the Study of Wireless Power Transfer Chris Mi, Ph.D, Fellow IEEE, IEEE Distinguished Lecturer, Professor, University of Michigan – Dearborn and	Magnetic resonance type wireless power transfer systems involve three dimensional coil structures. The calculation of mutual inductance of such systems using analytical methods are almost impossible, considering the various misalignment, including lateral, longitudinal, angular, and vertical misalignments. With two-port network theory, we can study WPT system with ease. Impedance matrix, transfer matrix, and scattering matrix can be measured or calculated using numerical tools. The impact of misalignment on the coupling coefficient can be easily studied with S-parameters. Smith Charts can be used to study the impedance matching for low power to high power applications. Transfer efficiency of the system can be easily mapped with the help of S-parameters with the help of impedance analyzer. Resonant parameters, including matching capacitances, can also be studied using Smith charts with the help of S-parameters and impedance analyzer.
14:00 – 14:30	How to create an ecosystem for dynamic wireless charging of electrified vehicles Dr. sc. techn. ETH Joachim G. Taiber Research Professor and Institute Director Clemson University International Center for Automotive Research (CU-ICAR) IEEE TEI Distinguished Lecturer	Sustainable mobility requires a stronger convergence between vehicle and infrastructure development. The ideal approach is to be able to recharge the vehicle while it is in motion to overcome range limitations and to “rightsize” the battery investment on the vehicle side. In the last few years significant progress has been made in the development of wireless charging technology. However, commercialization and standardization efforts as of today are focused on stationary wireless charging. In order to make progress in the development of dynamic wireless charging, an ecosystem incubation approach that involves a critical mass of complementary stakeholders from automotive, information and communication technology, civil engineering as well as energy is required to reach the technical and commercial maturity level that is needed to make significant contributions to the future of transportation is essential. The presentation will provide an overview about the technical and commercial challenges to establish a dynamic wireless charging ecosystem and how the IEEE Transportation Electrification platform can be used to orchestrate the convergence of critical knowledge and make useful contributions to the required standardization process.

14:30 – 15:00	Recent advances in circuit topologies, mathematical modeling, and system design, control, and implementation Dr. Srdjan Lukic Assistant Professor, North Carolina State University IEEE TEI Distinguished Lecturer	Wireless power transfer (WPT) via magnetic coupling has been an attractive research topic since the first experiments by Nikola Tesla, and continues to attract interest from the scientific community. In the vehicular arena, WPT concept has attracted a lot of interest for stationary electric vehicle chargers, due to the convenience and safety of the non-contact approach to vehicle charging. More visionary application would allow for vehicle on-board storage to be charged as the vehicle is moving, obviating the need for large capacity batteries. Current embodiments of practical WPT systems rely on tightly controlled coupling between the source and the receiver, usually achieved by mechanical restrictions on the movement of the receiver. Innovative applications of WPT require that one or many receivers be freely moving and at a substantial distance from the source. With recent advances in power electronics switching devices there is an opportunity to devise efficient wireless power transfer systems operating at higher frequencies and therefore at larger distances. This talk aims to discuss recent advances in circuit topologies, mathematical modeling, and system design, control, and implementation.	
15:00 – 15:30	***Coffee Break***		
15:30 – 16:00	Coupled Electromagnetic-Thermal Simulation for High Power Wireless Power Transfer Scott Stanton, Technical Director for Advanced Technology Initiatives, ANSYS, Inc.	Wireless Power Transfer technology has made a lot of progress in terms of improving efficiency by using better techniques and more integrated magnetic and electronics designs. For high power wireless power transfer that is used for Hybrid/Electric vehicles, any loss of efficiency will lead to potential thermal issues, not to mention increased temperature will further lead to change of material properties which have negative impact for both transformer itself, windings and electronics. It is crucial to study coupled electromagnetic-thermal effect on high power wireless power transfer so that even better efficiency can be achieved at different operating conditions.	
16:00 – 18:00	**Panel Session**	Moderator: Matt Roush, WWJ's Tech Report, CBS	
		Confirmed panelist: Omer Onar, Alvin M. Weinberg Fellow, R&D Staff, ORNL Ted Bohn, Argonne National Laboratory Scott Stanton, Technical Director, ANSYS Jeff Muhs, Director, Business Development, Witricity	Invited panelist: Ashok Moghe, Principal Engineer, ENG LABS, CISCO Jeff White, DENSO International TI Qualcomm Ford Motor Company
18:00 – 19:00	***Poster Session and Evening Reception/Networking***	***Posters presentations, booth displays from ANSYS, Inc., University of Michigan, IEEE SEM***	

Bio of Plenary Speakers

John M. Miller founded his consulting business JNJ Miller plc in 2002 with focus on hybrid and electric vehicle traction drive systems, vehicle electrification, and electric energy storage. Most recently he added wireless power transfer and charging of electric vehicles based in part on his work as a distinguished scientist at the Oak Ridge National Laboratory (ORNL). Dr. Miller was with ORNL since 2010 and served as program manager for DOE Vehicular Technology subprograms on power electronics and electric motors through FY13 and as director of the power electronics and electric power systems research center. Prior to ORNL he was vice president with Maxwell Technologies, San Diego, CA. He received the BSEE degree from the University of Arkansas (1976), the MSEE degree from Southern Methodist University (1979), and the Ph.D. Degree from Michigan State University (1983), all in electric engineering. He has authorized over 180 publications on automotive electrical and electronic systems, utility power systems, and transportation systems, including authoring three books, Hybrid Vehicle Propulsion Systems 1st and 2nd editions, Ultra-capacitor Applications, and is co-author on three others, one of which covers wireless charging technology that will be released during 2014. He holds 54 U.S. patents with several patents pending. Dr. Miller is a Fellow of SAE, a Fellow of the IEEE and IEEE distinguished lecturer, past editor-in-chief of Power Electronics Society news, recipient of 2009 Kliman Innovator award, recipient of the 2010 PELs distinguished service award, and a registered professional engineer for 34 years.



Chris Mi is a fellow of IEEE, Professor of Electrical and Computer Engineering at the University of Michigan, Dearborn, and the Director of the US DOE funded GATE Center for Electric Drive Transportation. He received the B.S. and M.S. degrees from Northwestern Polytechnical University, Xi'an, China, and the Ph.D. degree from the University of Toronto, Toronto, Canada, all in electrical engineering. Previously he was an Electrical Engineer with General Electric Canada Inc. He was the President and the Chief Technical Officer of 1Power Solutions, Inc. from 2008 to 2011. He is the Co-Founder of Gannon Motors and Controls LLC and Mia Motors, Inc. He has taught tutorials and seminars on the subject of HEVs/PHEVs for the Society of Automotive Engineers (SAE), the IEEE, workshops sponsored by the National Science Foundation (NSF), and the National Society of Professional Engineers. He has delivered courses to major automotive OEMs and suppliers, including GM, Ford, Chrysler, Honda, Hyundai, Tyco Electronics, A&D Technology, Johnson Controls, Quantum Technology, Delphi, and the European Ph.D School. He has published more than 100 articles and delivered 30 invited talks and keynote speeches. Dr. Mi is the recipient of "Distinguished Teaching Award" and "Distinguished Research Award" of University of Michigan Dearborn. He is a recipient of the 2007 IEEE Region 4 "Outstanding Engineer Award," "IEEE Southeastern Michigan Section Outstanding Professional Award." and the "SAE Environmental Excellence in Transportation (E2T) Award."Dr. Mi was the Chair (2008-2009) and Vice Chair (2006-2007) of the IEEE Southeastern Michigan Section. Dr. Mi was the general Chair of the 5th IEEE Vehicle Power and Propulsion Conference held in Dearborn, Michigan, USA in September 6-11, 2009. Dr. Mi is one of the three Area Editors of the Editor of IEEE Transactions on Vehicular Technology, associate editor of IEEE Transactions on Power Electronics, Associate Editor of IEEE Transactions on Industry Applications. He is the topic chair for the 2011 IEEE International Future Energy Challenge, and the General Chair for the 2013 IEEE International Future Energy Challenge. Dr. Chris Mi is a Distinguished Lecturer (DL) of the IEEE Vehicular Technology Society. He is also the General Co-Chair of IEEE Workshop on Wireless Power Transfer sponsored by PELS, IAS, IES, VTS, MAG, and PES, Editor of IEEE Journal of Emerging and Selected Topics in Power Electronics - Special Issue on WPT, and steering committee member of the IEEE Transportation Electrification Conference (ITEC- Asian).

Hai Jiang received his M.S. and Ph.D. degree in Electrical Engineering from the University of Dayton in Ohio. He is currently a Research Engineer at Corporate Research at Underwriters Laboratories (UL). Before joining UL, Dr. Jiang was a research associate at the Microwave Electronics Laboratory in the Department of Electrical and Computer Engineering at the University of Dayton. He has authored over 20 papers in reference journals and conference proceedings, and filed one US patent.

Scott Stanton is the Technical Director for Advanced Technology Initiatives at ANSYS. Inc. He has spent a combined 13 years of his career at ANSYS, Inc. and Ansoft Corporation working with customers throughout the United States, Europe and Asia in the modeling and simulation of electromechanical devices and systems such as: motors and drives, solenoids, sensors, transformers and actuators. Before joining Ansoft, Scott worked six years for Westinghouse Electric Corporation in the Power Generation Controls Group as well as the Industrial Automation and Drives Group. Scott holds a B.S. degree in electrical and computer engineering from Ohio University.

Chun T. Rim (M'90–SM'11) was born in Korea in 1963. He received the B.S. degree in electrical engineering from the Kumoh Institute of Technology (KIT), Korea, in 1985, and the M.S. and Ph.D. degrees in electrical engineering from the Korea Advanced Institute of Technology (KAIST), Korea, in 1987 and 1990, respectively. Since 2007, he has been an Associate Professor of Nuclear and Quantum Engineering, and an adjunct to Aerospace Engineering in Power Electronics at KAIST. He is currently developing various wireless power technologies including inductive power transfer systems for On-Line Electrical Vehicles (OLEV) and leading the Nuclear Power Electronics and Robots Lab (PEARL) at KAIST. From 1990 to 1995, he was a Military Officer at the Ministry of National Defense in Korea. From 1995 to 2003, he was a Senior Researcher at the Agency for Defense Development, Daejeon, and from 1997 to 1999, he was with Astrium in Portsmouth, U.K. From 2003 to 2007, he was a Senior Director at the Presidential Office, Seoul, Korea. He was involved in developing Korea's first airborne and spaceborne Synthetic Aperture Radars. His research area includes wireless electric vehicles, wireless power systems for robots and bio-medical applications, and general unified modeling of power electronics. He has authored or coauthored 105 technical papers, written five books, and holds more than 115 patents (awarded and pending). He won three prizes awarded by the Korean government, and has been the chairman of wireless power committee of KIPE since 2010 and the chairman of EV charger committee of KIEE since 2011, respectively. He is now the Associate Editors of IEEE Transactions on Power Electronics and Journal of Emerging and Selected Topics in Power Electronics (JESTPE), the Guest Editor of IEEE JESTPE Special Issue on Wireless Power Transfer, the General Chairs of 2014 IEEE VTC- Workshop on Wireless power (WoW) and 2015 IEEE WoW, respectively.

Dr. Joachim G. Taiber joined Clemson University in 2010 as a research professor and is faculty member of the Department of Automotive Engineering located at the Clemson University International Center for Automotive Research (CU-ICAR) in Greenville, South Carolina, USA. Since 2012 he is also institute director. The research focus of his institute is Sustainable Mobility and Connected Vehicle Technology where he studies in particular the interaction between vehicle and infrastructure systems. He is leading a joint economic development initiative between CU-ICAR and SC-TAC (South Carolina Technology Aviation Center) with the purpose to redevelop a significant part of an airport/business park property into a unique test bed for public and private stakeholders to develop and validate innovative vehicle-infrastructure solutions.

Prior to his engagement at Clemson University, Dr. Taiber was leading the Information Technology Research Office of the BMW Group Information Technology Research Center (ITRC), the first facility created at the CU-ICAR campus. He joined BMW in Germany in 1997 as an in-house consultant for business process re-engineering in product development with a focus on functional integration and vehicle systems integration. Since 1999 he worked in different leadership positions in the BMW Group Enterprise IT organization in the areas of IT strategy, IT program management, IT innovation management and IT benchmarking. In 2005 he came to the US to implement collaborative IT innovation projects for the BMW Group in the ITRC which included topics in the domain of the “networked vehicle”.

Dr. Taiber started his career as assistant to the CTO of a Swiss start-up company in the area of CAD/CAM/PDM systems where he was responsible for product strategy and university research collaboration. He holds a Master Degree in Mechanical Engineering and a PhD Degree in Technical Sciences from the Swiss Federal Institute of Technology in Zurich (ETHZ). He has been instrumental to develop the IEEE Transportation Electrification Initiative and chairs a new IEEE pre-standardization working group in dynamic wireless charging.

Srdjan M. Lukic received the M.S. and Ph.D. degrees in electrical engineering from the Illinois Institute of Technology. From 2002 to 2004, he was with Firefly Energy Inc., where he was responsible for optimizing certain aspects of carbon/graphite foam-based lead acid batteries for novel automotive applications. Currently he is an assistant professor in the department of electrical and computer engineering at North Carolina State University, Raleigh. He serves as the distributed energy storage devices subthrust leader at the Future Renewable Electric Energy Delivery and Management (FREEDM) Systems Engineering Research Center. Dr. Lukic served as a Guest Co-Editor of the IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS; and serves as Associate Editor of the IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS. His research interests include design, and control of power electronic converters and electromagnetic energy conversion with specific applications to wireless power transfer, energy storage systems and electric automotive systems.

Bio of Panelists

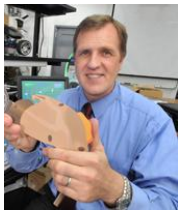
Matt Roush joined WWJ Newsradio 950 in September 2001 to spearhead the launch of the Great Lakes IT Report, a daily e-mail newsletter covering the technology world from a Michigan perspective. The publication was rebranded as the WWJ Technology Report with Matt Roush in January 2013. The publication covers tech broadly, including hardware, software, advanced manufacturing, the life sciences, tech education, automotive technology such as telematics and advanced powertrains, and renewable energy technologies. The publication concentrates on Michigan-based companies and technologies and covers how Michigan is transforming its economy from brute-force manufacturing to knowledge-based industries.

Prior to joining WWJ, Roush spent more than 10 years at Crain's Detroit Business as a reporter. Hired in 1990 to cover banking and finance, Roush's beat was switched to retailing in 1994. At that point, Roush discovered that retailers were concerned about losing sales to a then-novel medium called the Internet — and he started writing stories about the Internet that were thinly disguised as stories about retailing. In 1998, he began covering tech and the Internet full-time for Crain's. He also helped launch a tech news Web site for Crain's, CrainTech.com, in 2000.

Prior to Crain's, Roush covered beats as varied as business, health care, local government and real estate for the Kalamazoo Gazette (1987-90), the Traverse City Record-Eagle (1985-87), the Leelanau Enterprise (1980-85) and the Three Rivers Commercial (1978-80).

Roush, a resident of Dearborn, is active in his community and church. He has won numerous journalism awards from the Associated Press, UPI and the Association of Area Business Publications. His hobbies include cooking, camping, hiking, cross-country skiing, astronomy, gardening, and building and flying model rockets. Roush is a native of Three Rivers and a 1978 graduate of Albion College.

Omer C. Onar received his Ph.D. degree from Illinois Institute of Technology (IIT) in Electrical Engineering, in July 2010, Chicago, IL. At IIT, he was a doctoral research assistant and a PhD student at the Energy Harvesting and Renewable Energies Laboratory (EHREL) at the Electric Power and Power Electronics Center (EPPEC). He is the recipient of the IEEE-Vehicular Technology Society's 2008 "Transportation Electronics Fellowship" and the IEEE-Power Electronics Society's 2009 "Joseph J. Suozzi INTELEC® Fellowship in Power Electronics." In July 2010, he was awarded the Alvin M. Weinberg Fellowship at the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL), where he joined the Power Electronics and Electric Machinery Group. At Oak Ridge National Laboratory, he has been working on several projects including advanced power electronics and electric drives, renewable energies, energy storage systems, wireless power transfer systems, and smart grids. Onar is the principle author/co-author of over 55 journal and conference papers as well as five books / book chapters. He has been the "Top Reviewer" of IEEE Transactions on Vehicular Technology, elected by the Editor-in-Chief and Editorial Board of the Vehicular Technology Society in October 2011. Onar is a guest Associate Editor for the IEEE Transactions on Power Electronics – Special Issue on Transportation Electrification and Vehicle Systems and for the IEEE Journal of Emerging and Selected Topics in Power Electronics – Special Issue on Transportation Electrification. He also served as a guest Editor for the International Journal of Power Train's Special Section on Vehicle to Grid Applications and Rechargeable Vehicles. Dr. Onar served/serves as Track/Topic Chair and Session Chair for the IEEE Applied Power Electronics Conference and Exposition, IEEE Transportation Electrification Conference and Expo, IEEE Vehicle Power and Propulsion Conference, and the IEEE Energy Conversion Congress and Exposition.



Mr. Ted Bohn is Principal Electrical Engineer at the Argonne National Laboratory. He received his MS degree in Electrical Engineering from the University of Wisconsin - Madison. He has 22 years of experience in electrical engineering in industrial and research environments with emphasis on power electronics, electric machines, and control systems. He received the 2002 Grainger Outstanding Power Electronics Engineer Award. He has worked for 11 years in the area of hybrid electric vehicle - related design projects and organizing student vehicle design competitions.

Jeff Muhs is the Director, Business Development at WiTricity Corporation, Logan, Utah.

Directions

The University of Michigan-Dearborn is located at 4901 Evergreen Road, Dearborn, MI 48128.
Please call Chris Cell phone (734)765-8321 if you need help with directions.
From the north: Take Southfield (M-39) south to Ford Road (M-153) and exit west. Follow Ford Road about one mile to Evergreen Road and go south. We are on the west (right) side of the road, immediately south of Henry Ford Community College. When you get in to the North Entrance, make an immediate left turn (on to Richard Dr) and park on the left, in Lot E2 or E3.
From the west, east and south: Take I-94 to Southfield (M-39) and exit north. Follow Southfield to Michigan Ave. (U.S. 12) and exit west. Take Michigan Ave. west to Evergreen. While driving north on Evergreen, turn left on to the central entrance. When you get into the Central Entrance, make an immediate right turn (on to Richard Dr). Park on your right in to Lot E2 or E3
IAVS building is on the west side of Richard Drive. Please see the attached map for reference.

Parking

Please park at PEC lot (Lot C indicated below) or the Parking structure (indicated below).

Lodging for Out of Town Attendees:

The University maintains a contract price with the following hotels:

The Henry (formerly the Ritz Carlton, Marriott Chain)
300 Town Center Drive, Dearborn
UM EMPLOYEES AND GUESTS of the University and Employees: $129.00
Toll free number: 1-888-709-8081, ask for the University of Michigan Rate (UMIC) or online at
www.behenry.com and enter UMI for the corporate/promotional code.
University of Michigan Rate
Contact Person (if needed): Jessica Rayborn (313) 441-2050

THE ADOBA HOTEL (formerly the Hyatt Regency)
600 Town Center Dr., Dearborn, MI 48126
UM EMPLOYEES AND GUESTS of the University and Employees: $107 for a regular guest room, or $179 for a VIP suite with breakfast.
Reservations: 313 592-3622 or online at: www.adobadearborn.com and use code: UOMD

TownPlace Suites by Marriott Detroit/Dearborn
6141 Mercury Drive, Dearborn
Suites with a full kitchen, functional space for living and working
Studio Suites: One Queen Bed, Living Room area w/Pull-out Sofa and Full Kitchen
$89 per night