AGD2019 in Connecticut
Mohegan Sun Casino and Resort in Uncasville is host site for event

The Mohegan Sun Casino and Resort in Uncasville, Conn., is the host site of the Academy of General Dentistry’s 2019 Scientific Session, July 18-20.

The Mohegan Sun has night clubs, spas, 50 bars and restaurants, 40 shops and a golf club. Nearby are Ocean Beach Park, the U.S. Naval Submarine Base, Mystic Museum of Art, Mystic Seaport, Mystic Aquarium and other attractions.

Registration for AGD2019 includes the opening session, exhibit hall, scientific E-poster presentations and invitation to the president’s welcome reception.

Optional ‘course-packages’ are spaced to not overlap, giving attendees a quick way to create a schedule around a primary interest. There are 11 packages at various costs: Esthetics, Periodontics, Endodontics, Fixed Prosthodontics, Oral Surgery, Oral Medicine, Pediatric Dentistry, Basic Science, Sleep Solutions, Special Patient Care, and Anesthesia and Pain Management.

Find more information and registration details at AGD2019.org.

(Source: AGD)

Main lobby of the Mohegan Sun. The casino and resort property has night clubs, spas, 50 bars and restaurants, 40 shops and a golf club. Photo/Provided by Mohegan Sun Casino and Resort.

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Together, the cross-school team designed, optimized and tested two types of robotic systems, which the group calls catalytic antimicrobial robots, or CARs, capable of degrading and removing biofilms. The first involves suspending iron oxide nanoparticles in a solution, which can then be directed by magnets to remove biofilms on a surface in a plow-like manner. The second platform entails embedding the nanoparticles into gel molds in three-dimensional shapes. These were used to target and destroy biofilms clogging enclosed tubes.

Both types of CARs effectively killed bacteria, broke down the matrix that surrounds them, and removed the debris with high precision. After testing the robots on biofilms growing on either a flat glass surface or enclosed glass tubes, the researchers tried out a more clinically relevant application. Removing biofilm from hard-to-reach parts of a human tooth.

The CARs were able to degrade and remove bacterial biofilms not just from a tooth surface but from one of the most difficult-to-access parts of a tooth, the isthmus, a narrow corridor between root canals where biofilms commonly grow.

"Existing treatments for biofilms are ineffective because they are incapable of simultaneously degrading the protective matrix, killing the embedded bacteria and physically removing the biodegradable products," says Koo. "These robots can do all three at once very effectively, leaving no trace of biofilm whatsoever."

By plowing away the degraded remains of the biofilm, Koo says, the chance of it taking hold and re-growing decreases substantially. The researchers envision precisely directing these robots to wherever they need to go to remove biofilms, be it the inside of a catheter or a water line or difficult-to-reach tooth surfaces.

"We think about robots as automated systems that take actions based on actively gathered information," says Steager. In this case, he says, "the motion of the robot can be informed by images of the biofilm gathered from microcameras or other modes of medical imaging."

To move the innovation down the road to clinical application, the researchers are receiving support from the Penn Center for Health, Devices and Technology, an initiative supported by Penn’s Perelman School of Medicine, Penn Engineering and the office of the vice provost for research. Penn Health-Tech, as it’s known, awards select interdisciplinary groups with support to create new technologies, and the robotic platforms project was one of those awarded support in 2018.

"The team has a great clinical background on the dental side and a great technical background on the engineering side," says Victoria Berenholz, executive director of Penn Health-Tech. "We help to round them out by connecting them to business mentors and resources within the Penn community to translate their technology. They have really done a fantastic job on the project."

About the study authors

In addition to Koo, Steager, Stebe and Kumar, the study was cowritten by first author Geesu Huang, Amarsi J. Paulia, Yuan Liu, Alaa Ababeer and Bekir Karabacak of the School of Dental Medicine and Elizabeth E. Hunter of the School of Engineering and Applied Science.

The study was supported in part by the National Institute for Dental and Craniofacial Research (grants DE025848 and DE018023) and National Science Foundation.

Koo is a professor in the Penn Dental Medicine Department of Orthodontics and in the divisions of pediatric dentistry and community oral health.

Steager is a research investigator in the School of Engineering and Applied Science’s General Robotics, Automation, Sensing and Perception Laboratory (GRASP Lab).

Kumar is the Nemirovsky Family Dean of Penn Engineering with appointments in the departments of mechanical engineering and applied mechanics, computer and information science, and electrical and systems engineering.

Stebe is the Richer and Elizabeth Goodwin Professor of Chemical and Biomolecular Engineering in the School of Engineering and Applied Science.

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Find the ‘Power of the Complete Team’ in Florida

Discover the “Power of the Complete Team” at the 2019 Florida Dental Convention (FDC), June 27-29, at the Gaylord Palms Resort and Convention Center in Orlando. This year’s program focuses on collaboration among the entire dental team. FDC2019 offers 120-plus courses to enhance and refine skills for everyone on the dental team. Attendees can earn up to 20 hours of C.E. credit.

Course highlights include topics such as Botox/dermal fillers, dental implants, all-on-four dentures, insurance coding, reading body language and much more.

Exclusively at FDC2019, “Dawson Seminar 1: From TMJ to Smile Design” is being offered for a substantially discounted price. In this introductory seminar to The Dawson Academy’s “The Concept of Dentistry® Series,” participants will learn the timeless message that good, esthetic and complete dentistry must begin with a thorough understanding of dental occlusion and the functions of the masticatory system.

In addition to this Dawson Seminar 1, attendees will be able to take advantage of individual breakout sessions being presented by a number of Dawson Academy faculty members.

New this year, attendees can visit the exhibit hall for free with an “Exhibit Hall Only” pass. It’s available to any dental professional or guest who opts to register as “Exhibit Hall Only” to take advantage of the offer. More than 300-plus exhibiting companies and organizations will be on the exhibit floor with the profession’s latest technology, materials, instrumentation and other products and services.

The adage, “Come for the C.E. and stay for the fun,” takes on new meaning at the Gaylord Palms Resort. Without ever having to leave the site, attendees will be able to relax at the adult-only pool or tap into their inner child on one of the many waterslides.

Other fun events during FDC2019 include Thursday’s “Beer Tasting in Paradise,” featuring a five-course tasting and beer pairing where all proceeds will benefit the FDA Foundation. Next, you can join your colleagues at an all-request show at “Dueling Pianos.” On Friday, you can walk the plank to “Pirate Island” for live music and family-friendly fun. And finally, if you are looking for nightlife, end the day celebrating the new dentists and ASDA students at “The After Party.”

Beyond the on-site events, you can “Stay for the Magic” and enjoy the area’s Walt Disney World theme parks at a discounted price for convention attendees.

Meeting organizers encourage you to bring your team and join your colleagues, June 27-29, to discover the “Power of the Complete Team.” You can register at www.floridadentalconvention.com. For questions, you can email fdc@floridadental.org or call (850) 681-3629.

(Source: Florida Dental Convention)