



Academy of Prosthodontics Annual Scientific Session Naples, Florida | May 3 – 6, 2023

Program Speaker – Amirali Zandinejad

Title

Additive Manufacturing in Clinical Dentistry and the Potential for Fabricating Bio-inspired Dental Restoration

Abstract

Additive manufacturing (AM), also known as 3D printing, were introduced as a new manufacturing technique in dentistry for processing polymers, metal, and ceramics and it has been used for fabrication of dental restorations. Additive manufacturing (AM) has several advantages over subtractive manufacturing, including fabrication of complex geometries and the ability to form structures in multiple materials with different properties.

Creating a bio-inspired dental restoration has been a long goal for clinical scientists and aims to manufacture a dental restoration that reproduces the properties of human enamel and dentin. Available fabrications techniques including subtractive are not capable to replicate the complex human tooth structure, however, AM has the potential to allow for the fabrication of functionally graded dental restorations emulating the mechanical properties of human enamel and dentin.

Learning Objectives

1. Advantages of additive manufacturing and available technologies for fabricating dental restorations
2. The properties and structure of human enamel and dentin
3. Novel bio-inspired crown design
4. Fabrication of bio-inspired dental restorations using additive manufacturing technology

Biography

Dr. Zandinejad, is a full-time prosthodontist at Implant Dentistry Associates of Arlington in Texas and part time Associate Professor in Comprehensive Dentistry Department at Texas A&M, College of Dentistry.

Dr. Zandinejad completed his dental training in 1996 and continued his education by finishing multiple residency programs in operative dentistry, AEGD and prosthodontics. He started his

academic career as assistant professor in Louisville in 2011 and joined Texas A&M college of dentistry in 2015 as the director of AEGD residency program, where he promoted to associated professor with tenure in 2017 and served the college of dentistry in this position from 2015 to 2022. He stepped down from his full-time academic position in September 2022 and joined the practice limited to implant dentistry. He is a fellow of International Team for Implantology (ITI), author or co-author of more than 60 scientific manuscripts and abstracts, serves as reviewer for many scientific dental journals and holds multiple patents on new prosthetic design and bio-inspired dental restorations using 3D printing technologies. He lectures nationally and internationally on new technologies, implant and esthetic dentistry.