Year: 2023   **Type of Award:** Elite
Name of Principal Investigator: Kiho CHO
Affiliated Institution: Faculty of Dentistry, The University of Hong Kong

About of the PI

Dr (Dan) Kiho Cho is an Assistant Professor in the Faculty of Dentistry at The University of Hong Kong since 2021. He received a PhD degree in the School of Mechanical and Manufacturing Engineering in 2020 from the UNSW-Sydney for his research on the development of short S-glass fiber reinforced dental restorative composites.

His current research activities cover a range of topics in the multiphasic/multi-functionalized dental and biomaterials, surface science and engineering on the nanomaterials and bio-composites, 3D printing technologies for novel dental devices and medical scaffolds, and computational molecular dynamics study on nano-biomaterials so as to improve their mechanical, physical, biological, and clinical performances.

He specializes in dental research on innovative materials and precise digital devices, focused on optimizing their practical application in dental clinics. For his significant contribution to dental/biomaterials research, he received the 2020 IADR STAR Network Academy Fellowship and this recognition facilitated his transition from mechanical engineering into the field of dental research.

Innovation frequently originates from a simple idea that emerges from the quite unrelated fields. Embracing the integration of concept and ideas from different fields can unlock novel perspectives and innovative solutions that have a profound impact on a variety of research and industries. Dr. Cho's extensive background in mechanical engineering may hold great potential for advancing the emerging field of digital dental research and therapeutics.

Dr. Cho's ongoing research efforts are focused on developing innovative methodologies that improve the accuracy and convenience of complex dental procedures, helping dentists effectively address difficult treatment scenarios.

Brief Summary of the Project:

This project aims to develop new clear resins and manufacturing technologies of 3D printing to embed nano-dot optical sensors into 3D-printed polymer dental devices, such as orthodontic clear aligners and retainers. The developed novel aligner system is expected to dramatically improve the quality and outcome of orthodontic treatment by easily and accurately measuring the magnitude and direction of the orthodontic forces.