

# INSTRUCTORS



**Theodore Eliades**

Professor and Director of the Clinic of Orthodontics and Pediatric Dentistry, Director of Research of the Center of Dental Medicine, and Interim Director, Institute of Oral Biology, University of Zurich, as well as Visiting Prof. at King's College London and the University of Adelaide. He graduated from the National and Kapodistrian University of Athens, Greece, and completed his Orthodontic residency at the Ohio State University. He has earned a Master of Science from Ohio State, a Dr Med Sci from the University of Athens, a PhD and a DSc from the University of Manchester. He has published 250 papers and 50 book chapters, and edited 12 textbooks, some translated in 5 languages.



**Spyridon Papageorgiou**

Received his dental degree in 2011 (Aristotle University of Thessaloniki) and his orthodontic specialty degree / doctorate in 2016 (University of Bonn). He is Senior Research and Teaching Assistant at the Center of Dental Medicine, University of Zurich, and has published 120 papers in international peer-reviewed journals and chapters in textbooks, and has given several invited talks and workshops worldwide. He has received the American Association of Orthodontics David L. Turpin Award in 2012 and Helen E. Dewel Award in 2018, the British Orthodontic Society Chapman Prize in 2018, and the European Orthodontic Society W.J.B. Houston Memorial Award in 2017.



**Spiros Zinelis**

Associate Professor of Biomaterials, at the School of Dentistry, National and Kapodistrian University of Athens and Visiting Scientist at the Center of Dental Medicine, University of Zurich. A metallurgical engineer by training, he obtained a PhD in materials science from the National Technical University of Athens. His research interests include microstructural, mechanical, electrochemical and surface characterization of biomaterials. He has published 140 papers and 15 book chapters

## MATERIALS & MECHANICS IN ORTHODONTICS

SUMMER SCHOOL

**6 - 10 / JULY**

**Zurich, Switzerland**

A 1-week theoretical and hands-on instrumental analyses course integrating materials science in contemporary orthodontic practice

**MORE INFO:**

[orthodonticsymposia.ch/summerschool](https://orthodonticsymposia.ch/summerschool)



[orthodonticsymposia.ch/summerschool](https://orthodonticsymposia.ch/summerschool)

# Continuing Education 25 CE hours

*(Limited number of participants to 20)*

## Description

The **aim** of the course is to provide a thorough, concise, independent from the industry, and clinically-oriented **guide** to the application of **materials** in Orthodontics, targeting the practicing clinician who has a limited spectrum of knowledge in the field and wishes to comprehend the mechanisms and effects underlying their use.

The course reviews the applications of biomaterials and their effects on the enamel preparation, bonding, bracket and archwire ligation, mechanotherapy, debonding, and long-term enamel structural, color and surface effects, aligners and fixed retainer bonding, and is **structured around 3 axes:**

- Review of the mechanisms accompanying the bonding of appliances or application of aligners to the dental arch;
- A guide on how to critically review the information available in the literature on topics related to materials applications (bonding, mechanotherapy, debonding, aligners);
- Hands-on training on analytical instrumentation applied onto hard tissue and materials specimens, which extends from molecular analysis (Raman spectroscopy), imaging, and mechanical testing (hardness, modulus, strength).

## PROGRAM

### MONDAY

**Course:** Why materials and mechanics? The stress and strain of materials and tissues in tooth movement

**Evidence:** Analysis of relevant representative RCTs and systematic reviews

**Lab rotation:** Fundamentals of instrumental analysis (theory)

### WEDNESDAY

**Course:** Orthodontic alloys and ceramics (brackets, wires, TADs)

**Evidence:** Relevant RCTs and meta-analyses on effects of appliance variables on treatment

**Lab rotation:** Metallographic preparation (etching, polishing), hardness test

### FRIDAY

**Course:** Bonding in orthodontics-future bonding without etching

**Evidence:** Relevant evidence on effects of bonding on enamel

**Lab rotation:** Enamel specimen after debonding: morphology, color, gloss and structure

### TUESDAY

**Course:** The structure of matter: how the world is built around us

**Lab rotation:** Surface and bulk structure (microscopy and Raman spectroscopy)

### THURSDAY

**Course:** Orthodontic polymers (adhesives, aligners, appliances, elastomers)

**Evidence:** Relevant RCTs and meta-analyses on effects of appliance variables

**Lab rotation:** Raman spectroscopy on polymer specimens

## COURSE MATERIAL

Orthodontic Applications of Biomaterials

