

DENTAL FRACTOGRAPHY COURSE 2016

30. August - 02. September

PROGRAM

Hands-on Instructors: Quinn GD, Scherrer SS, Lohbauer U, Cesar P, Belli R

Lectures: H. Hauptmann (3M ESPE), U. Lohbauer

Day 1: In vitro Fractography

08:30-09:00	Welcome	(GQ, SS, UL)
09:00-09:15	History, relevant standards and NIST Guide	(GQ)
09:15-09:45	Brittle material behaviors and strength testing basics	(PC)
09:45-10:15	Fractographic equipment and viewing techniques, Part 1 (live demo)	(GQ)
10:15- 10:30	COFFEE BREAK	
10:30-10:50	Hands on 1: Hand loupes, how to use stereomicroscopes, glass rods	(GQ)
10:50-11:35	Fractographic equipment and viewing techniques, Part 2 (live demo)	(GQ)
11:35-12:05	Fracture surface features, Part 1 (in vitro)	(SS)
12:10-13:20	LUNCH BREAK	
13:20-14:00	Fractography and Fracture origins	(PC)
14:10-15:10	Hands on 2: Ceramic bending bars (Al_2O_3 and ZrO_2)	(GQ, SS, UL, PC)
15:10-15:30	COFFEE BREAK	
15:30-16:10	Mechanical properties and microstructure of dental ceramics	(UL)
16:10-16:35	Edge chipping	(GQ)
16:35-17:00	Open discussions or interactive slides on fracto features	(all)

Day 2: Basics on Fracture Mechanics and In vivo Fractography

08:30-09:15	Introduction to fracture mechanics	(GQ)
09:15-09:45	Fracture mechanics in the focus of the oral environment	(UL)
09:45-10:15	Weibull statistics	(GQ)
10:15-10:30	COFFEE BREAK	
10:30-11:05	Dental Porcelain Fractography	(PC)
11:05-11:25	Dental porcelain flaws: Vita Mark II bend bars	(GQ)
11:25-11:55	Machining and processing flaws	(GQ)
12:00-13:00	LUNCH BREAK	
13:00-13:45	Hands-on 3+4 ceramic bend bars	(GQ,UL)
13:45-14:10	Data collection: A systematic approach	(SS)
14:10-15:00	Fracture surface features, Part 2 (in vivo)	(SS)
15:00-15:15	COFFEE BREAK	
15:15-15:40	Case presentations 1	(SS)
15:40-16:00	Case presentations 2	(GQ)
16:00-17:00	Interactive clinical cases	(SS, UL, PC)

Day 3: In vivo Fractography

08:30-08:55	Case presentations 3	(SS)
08:55-09:25	Case presentations 4	(UL)
09:25-10:25	Hands-on 5 and 6: Clinical cases	(all)
10:25-10:40	COFFEE BREAK	
10:40-11:10	The replica technique	(SS)
11:10-11:50	Hands-on 7: Replica technique	(SS)
11:50-12:20	Hands-on 8: Systematic approach on crown replicas	(UL, RB)
12:20-13:30	LUNCH BREAK	
13:30-14:15	Microstructure and mechanical properties of resin composites	(UL)
14:15-14:25	Fractography of dental composites (Lab & clinical)	(GQ)
14:25-14:35	Fractography of ACP filled resin disks	(GQ)
14:35-14:50	Case Study: 3M Paradigm MZ 100 filled resin composite	(GQ)
15:00-15:15	COFFEE BREAK	
15:15-15:45	Hands-on 9: Filled-resin bending bars	(GQ)
15:45-16:15	Fractography of clinical composite failures	(SS)
16:15-16:45	Hands-on 10 and demo: Composite clinical fractures	(SS)

Day 4: Research and Fractography

- 08:30-09:15 Clinically relevant laboratory testing of ceramic crowns (GQ)
- 09:15-09:45 Key role of fractography in failure analysis of brittle dental restorations (PC)
- 09:45-10:15 Interactive cases (SS, UL, PC)
- 10:15-10:30 COFFEE BREAK
- 10:30-11:15 Imaging issues related to fractography in the SEM (Holger Hauptmann)
- 11:15-11:45 Fractographic Databases (UL)
- 11:45-12:00 Closing remarks, end of the Fractocourse 2016