

**Serbian Ceramic Society Conference  
ADVANCED CERAMICS AND APPLICATION**

Organized by  
**Serbian Ceramic Society**  
&  
**Institute of Technical Sciences of SASA**

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
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### **Contemporary Dental Ceramics**

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The aim of this study was to provide an overview of evolution of ceramic systems and future perspectives related to computer-aided design and computer-aided manufacturing (CAD/CAM) technology.

Dental ceramics were introduced to restorative dentistry at the beginning of the XX century as porcelain jacket crowns. However, their limited use in clinical practice was mainly associated to the mechanical shortcomings. In the early sixties porcelain-fused to-metal restorations were developed and for years have represented the “gold standard”, thanks to their good mechanical properties and to somewhat satisfactory esthetics. In the last thirty years, the growing demand for highly esthetic restorations has led to development of new all-ceramic materials and techniques.

All-ceramic restorations combine esthetic veneering porcelains (consisting of a glass and a crystalline phase of fluoroapatite, aluminum oxide, or leucite) with strong ceramic cores, mainly made of lithium-disilicate, aluminum-oxide or zirconium-oxide. The most common complication is fracture that can initiate from several different sites on the surface, at interfaces, or within the material.

While conventional methods of ceramic fabrication usually contain internal porosity, CAD/CAM technology ensures almost no internal defects. Such improvements in ceramic processing have allowed better structural reliability and greatly contributed to the success of all-ceramic systems.