

Ringvorlesung Sommersemester 2006  
**Materialcharakterisierung mit modernen Methoden  
der physikalischen und chemischen Analytik**

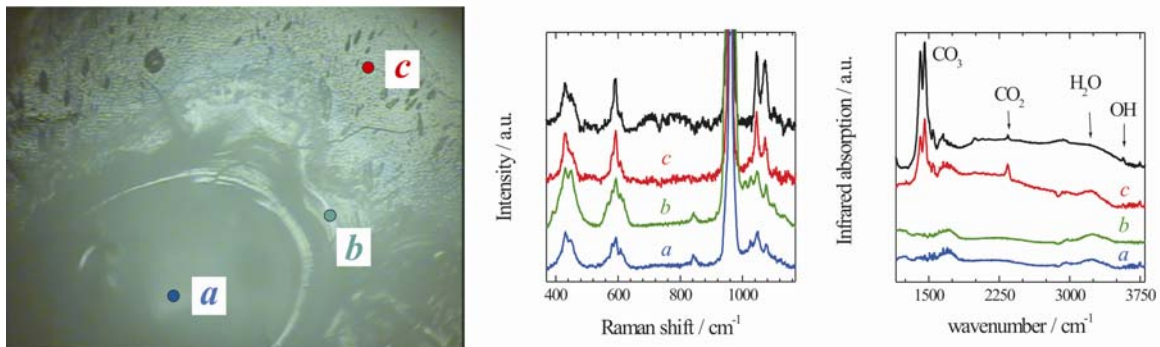
Mittwochs, 17.15 – 18.00 Uhr, Hörsaal B, Fachbereich Chemie, Martin-Luther-King-Platz 6

Mittwoch, 17.05.2006

**Laser treatment of dental materials**

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Lasers are powerful and indispensable tools, used in almost every aspect of technology. The application of lasers in clinical dental practice is becoming more and more popular, because of the painless, time-saving, and easy-handling laser treatment of teeth. However, it is still not clear what really happens with the atomic structure of hydroxyapatite, the mineral that builds our teeth, under laser irradiation. To elucidate this issue, laser-treated samples of human enamel and synthetic hydroxyapatite were investigated by FT-IR and Raman micro-spectroscopy. The relationship between the structural changes and the laser-treatment parameters are discussed.



Raman and infrared spectra collected from different spatial areas of laser-treated human enamel; the top lines represent the untreated enamel. The Raman scattering signals reveal the irradiation-induced structural changes in the calcium phosphate system, while the infrared absorption shows the transformations of different molecular groups.