

Universidade Federal de Pernambuco  
OSA Student Chapter Pernambuco



**1<sup>st</sup> IONS-SA**



## OSA Student Chapter Pernambuco

### Students Talk

**ST1 • 11:30 a.m.**

#### **Effect of Nd:YAG laser on enamel resistance to demineralization when associated with fluoride application**

*Santos, M.O; Goulart, V.P; Corrêa, P.R; Ana, P.A; Zezell, D.M*

*Universidade de São Paulo – Instituto de Pesquisas Energéticas e Nucleares, Brazil*

[moises.santos@usp.br](mailto:moises.santos@usp.br)

Studies have shown that the use of laser irradiation associated with topical application of fluoride may reduce the progression of carious lesions considering that laser irradiation increases the fluoride uptake. The aim of this study was: to assess the effects of enamel irradiation with Nd: YAG laser ( $\lambda = 1.064 \text{ mm}$ ), with or without topical fluoride application, analyzing the amount of organic and carbonate content of samples before and after irradiations using the Attenuated Total Reflection with Fourier Transform Infrared (ATR-FTIR) technique to quantify the calcium fluoride formed immediately after irradiation: to check the F- retention even after submission to a pH-cycling model. 150 human enamel blocks were made, and randomly divided into five groups of 30 blocks each. After treatments, 10 samples from each group were subjected to compositional analysis by ATR-FTIR; other 10 samples, for analysis of calcium fluoride formed, and 10 remaining samples were submitted to pH-cycling for determination of F-retained. Irradiation the Nd:YAG laser was able to promote chemical changes in enamel, such as loss of carbonate and organic material and when combined with fluoride, increases the formation and retention of fluoride in enamel. Supported by: FAPESP CEPID (05/51689-2), CAPES/Procad (0349/05-4), Rede de Nanofotônica - MCT/CNPq (555170/2005-5), FAPEAM – Programa RH-POSGRAD.

Keywords: Caries Prevention, Nd:YAG Laser, Fluor.