

to a pair of slightly displaced Al atoms. Even in absence of long-range order, the substrate thus favors a specific structural and electronic molecular conformation, which can be representative of a real interface layer of pentacene at an Al electrode.

[1] [J. Phys. Chem. C, 2015, 119 \(7\), pp 3624–3633](#)

### #P077 - Quantum ring: HHG spectrum control.

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Atoms, molecules , clusters and other systems driven by a strong laser field of frequency \omega\_L can emit a spectrum of laser harmonics.

The high harmonics generation (HHG) phenomenon is strongly affected by the symmetries of the system. It is well known that systems with rotational symmetries emit only odd harmonics.

Numerous researcher make mainly attention to the possibilities to set different initial conditions in order to control the spectrum. Recently, the study of nanotechnology is hot-topics and in particular the study of very symmetric systems such as fullerene, nanoring and structured nanoring (nanoring with identical and symmetric scattering centers).

Therefore, it is natural and interesting to study the HHG emission from these systems and the effects of the symmetry break.

In this poster we present the HHG spectrum emitted by a nanoring consisting of six symmetric scattering centers; as a second step we study the effects on the spectrum by small symmetry breakings. We show that tiny modifications of the symmetry allow a good control of the spectrum.

### #P078 - ON SURFACE DATING OF BRICKS

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Luminescence techniques are nowadays a powerful tool to date archaeological ceramic materials and geological sediments. In particular thermoluminescence (TL) is widely used for brick dating, to reconstruct the building chronology of urban complexes. However, it can be sometimes inconclusive, since TL assesses the firing period of bricks, that can be reused in different structures even after centuries. This problem can be circumvented by using a dating technique which uses a resetting event different from that of TL, which is the last heating of the material. An ideal candidate is OSL, for which the reset is the last exposure to sun light. In fact, the exposure of the brick surfaces during the edification resets the light sensitive electron traps until the covering with mortar. This advanced application of the OSL technique (surface dating) has been successfully attempted on rocks, marble and stone artifacts, but not routinely on bricks. An attempt of application was possible thanks to a recent conservation campaign at the Certosa di Pavia complex (Italy) where some bricks belonging to a XVII century collapsed wall could be sampled. It was therefore possible to compare the dating results obtained by TL and OSL with the historical data. The main requirement for the successful application of surface dating is the assessment of the bleaching effectiveness of the solar exposure. To evaluate the sunlight effects on the luminescence signal of the surface, small carrots of brick have been exposed to daylight for different periods (from 60 s to 1 year). Measurements of the OSL/IRSL signals showed that after a few hours the signal from the surface was reduced to 20% of the original one. The deeper layers were significantly bleached only after one month of exposure. The depth profile of signals (OSL emission vs. depth) depends on the opacity of the material, on the daylight spectrum and on the exposure time. The characteristic form of the OSL /IRSL resetting profile in a brick is well fit by an empirical model based on that proposed for rocks [Sohbati et al., 2012], adding a time-dependent exponential term to the function of light signal vs depth.

R. Sohbati et al., J. Geophys Res-Sol **117** (2012).

### #P079 - Proposal of a method for correcting the dose images measured with gafchromic EBT3 films irradiated with proton beams

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The response of gafchromic EBT3 films depends on the LET of radiation, showing a quenching effect in the high LET region. A method has been studied to correct the measured values in a simple and efficient way, feasible in the clinical practice. Considering that for patient treatments hundreds of beams are necessary, two points were taken as a basis of the procedure to be developed. The first point was that of avoiding the measurement of the depth-dose curve for all the utilized energies, evaluating the function