

Abstract Submitted  
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**Surface characterization at the spatial resolution limit with Individual Cluster Impacts**<sup>1</sup> FRANCISCO FERNANDEZ-LIMA, MICHAEL J. ELLER, JOHN D. DEBORD, STANISLAV V. VERKHOTUROV, Texas A&M University, SERGE DELLA-NEGRA, IPN, Orsay, EMILE A. SCHWEIKERT, Texas A&M University — The use of cluster bombardment (e.g. C<sub>60</sub> and Au<sub>400</sub>) for surface analysis and characterization has shown significant advantages due to enhanced emission of molecular ions, low damage cross section, and reduced molecular fragmentation. At temporally and spatially discrete cluster impacts, the small impacted volume (10<sup>3</sup> nm<sup>3</sup>) and ionized ejecta are ideal candidates for surface molecule interrogation. In the present talk, recent measurements of co-emitted photons, electrons and secondary ions from individual cluster impacts for several projectile-target combinations will be presented. Inspection of the photon and electron emissions show that the emission profiles are correlated with the target structure/composition at the nanometer level, with the particularity that co-emitted photons, electrons and secondary ion pairs can be used as indicators of the surface content and homogeneity. Examples of surface mapping of intact molecules via electron emission microscopy combined with secondary ion detection will be shown.

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