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### **Electron and Ion Emission from Clusters exposed to Strong Laser Fields**

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When clusters interact with intense optical laser pulses energetic and highly charged atomic fragment ions e.g. are generated<sup>1</sup>. In contrast to atoms the efficiency of the process could be enhanced by choosing a pair of optical delayed pulses instead of a single but more intense femtosecond pulse<sup>2</sup>. In metals the stronger charging of the clusters can qualitatively be explained by a plasmon enhanced ionization process. We extended our studies and have made a compared analysis of the emission of highly charged ions and energetic electrons the interaction dynamics of intense femtosecond laser fields with nanometer-sized silver clusters. Using a pair of laser pulses with variable optical delay the time-dependent cluster response is resolved. A dramatic increase both in the atomic charge state of the ions and the maximum electron kinetic energy is observed for a certain delay of the pulses. Corresponding Vlasov calculations on a metal cluster model system indicate that enhanced cluster ionization as well as the generation of fast electrons coincide with resonant plasmon excitation.<sup>3</sup>

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