

Abstract Submitted  
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**Metal Cluster Anions Produced by Attachment of Slow Electrons: Readjustment and Blurring of the Magic Numbers**<sup>1</sup> ROMAN RABINOVITCH, RAMIRO MORO, CHUNLEI XIA, VITALY KRESIN, University of Southern California — The high electric polarizabilities of metal clusters enable them to attach low-energy electrons with large cross sections: electrons are captured by a strong long-range polarization potential. But the last stage of the collision process is not understood: where and how fast is the captured electron's energy deposited? The question is closely related to the problem of electron relaxation in size-quantized nanosystems. To explore this, we have measured the mass spectra of sodium cluster anions born in the electron-cluster interaction region. If the energy deposited by the captured electron is quickly thermalized and is sufficient to cause rapid cluster evaporation, there should be a rearrangement of the cluster abundances and a shift of the magic numbers from  $\text{Na}_n$  to  $\text{Na}_{n-1}^-$ . Such a shift is clearly observed at shell closings near  $n=20$  and  $n=40$ . However, near  $n=58$  and  $n=92$  the shell closings become completely blurred. This interesting change may be due to a bottleneck in electron relaxation and/or to insufficiently fast evaporation.

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