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**Preliminary results on a new method for producing ultracold molecular ions** WADE RELLERGERT, KUANG CHEN, SCOTT SULLIVAN, ERIC HUDSON, University of California - Los Angeles — We describe a new method for the production of ultracold molecular ions. This method utilizes sympathetic cooling due to the strong collisions between appropriately chosen molecular ions and laser-cooled neutral atoms to realize ultracold, internal ground-state molecular ions. In contrast to other experiments producing cold molecular ions, our proposed method efficiently cools both the internal and external molecular ion degrees of freedom. Preliminary results from experiments aimed at cooling trapped molecular ions using an Yb MOT are presented.

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