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Creation and interrogation of a correlated molecular plasma JONATHAN MORRISON, NICOLAS SAQUET, ED GRANT, University of British Columbia — Since the first realization of a correlated molecular plasma formed in a super-sonic beam expansion [1], much work has been devoted to characterizing fundamental parameters of the plasma: the ambipolar expansion rate is driven by electron kinetic energy and has been observed [2] to be lower than ultracold atomic plasmas produced in magneto-optical traps. Molecular dissipation mechanisms present a unique channel for directing energy away form electron kinetic energy. The importance of the entire Rydberg level manifold must be considered to accurately describe these systems [3], increasing the importance of molecular processes both at early, and later instances of the plasma lifetime.

[1] Morrison, J.P. *et al.* Phys. Rev. Lett. **101** 205005, 2008.
[2] Morrison, J.P. *et al.* Phys. Rev. A. **79** 062706, 2009.
[3] Morrison, J.P. *et al.* J. Phys. B. **45** 025701, 2012.

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