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Photoinduced two-body loss of ultracold molecules TIJS KARMAN, ITAMP - Harvard, ARTHUR CHRISTIANEN, Max-Planck Institut fr Quantenoptik Munich, MARTIN ZWIERLEIN, MIT-Harvard Center for Ultracold Atoms, Research Laboratory of Electronics, and Department of Physics, Massachusetts Institute of Technology, GERRIT GROENENBOOM, Theoretical Chemistry, IMM, Radboud University, Nijmegen, Netherlands — Ultracold polar molecules are a promising platform for applications such as precision measurement, quantum computing, and quantum simulation. In typical experiments, the molecules lifetime is limited by loss due to molecule-molecule collisions. Surprisingly, collisional loss is observed even for chemically stable molecules, and cannot be explained by sticky collisions, proposed previously [1]. Instead, we show that excitation of collision complexes by the laser used to trap the molecules leads to the effective two-body loss observed experimentally [2]

[1]Mayle, Ruzic, and Bohn, *Phys. Rev. A*, **85**, 062712 (2013)
[2]Christianen, Zwierlein, Groenenboom, and Karman, *Phys. Rev. Lett.*, **123**, 123402 (2019)

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