

Abstract Submitted
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Weakly Bound Rydberg-Dipole Molecules SETH RITTENHOUSE,
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— We predict a class of long-range Rydberg molecules consisting of a Rydberg atom
and a tightly bound polar molecule. Long-range Born-Oppenheimer potentials that
describe the interaction in these molecules are presented. These potentials and
fall into two classes which produce different polarization directions of the dipolar
molecule with respect to the positively charged Rydberg core. The large overall
dipole moment of the Rydberg atom-dipole system may allow for control of molecular
polarization using relatively small electric fields. Different experimental scenarios
and atom-molecule mixtures are discussed.

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