

Abstract Submitted
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Calculations of long range interactions for ^{87}Sr Rydberg states¹

FRANCIS ROBICHEAUX, Purdue Univ — A method for calculating the properties of Rydberg states and Rydberg-Rydberg interaction between two ^{87}Sr atoms is described.[1] The method is based on a multichannel quantum defect theory (MQDT) description of the Rydberg states that accounts for the hyperfine splitting of the $^{87}\text{Sr}^+$ ground state. Results are given for the scalar and tensor polarizabilities and the eigenvalues of the C_6 matrix for the $5sns F_T = 9/2$ series. These results illustrate the new features that arise due to the hyperfine splitting of the thresholds. In particular, there should be several strongly coupled Förster resonances above $n = 50$ unlike the case of ^{88}Sr which has none. [1] F. Robicheaux, Calculations of long range interactions for ^{87}Sr Rydberg states, J. Phys. B **52**, 244001 (2019).

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