New calculations of radiative charge transfer and of radiative association rate coefficients

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Recent calculations of radiative charge transfer and radiative association rate coefficients are presented. In the case of C and He+, both in their ground states, radiative charge transfer is found to be large compared to direct charge transfer at thermal and lower energies [1]. In the case of C and H+ interacting via triplet molecular potentials, the rate coefficients for radiative association are found to be about 100 times larger than the (well-studied) values for radiative association via singlet molecular potentials [2]. New calculations of the radiative association rate coefficients for Si and O are discussed [3].

[1] Babb, J. F. and McLaughlin, B. M., J. Phys. B: At. Mol. Opt. Phys. 50 (2017) 044003.

[2] Babb, J. F. and McLaughlin, B. M., MNRAS 468 (2017) 2052.

[3] Forrey, R. C., Babb, J. F., Stancil, P. C. & McLaughlin, B. M., J. Phys. B: At. Mol. Opt. Phys. 49 (2016) 184002. Cairnie, M., Forrey, R. C., Babb, J. F., Stancil, P. C. & McLaughlin, B. M., MNRAS, published online July 8, 2017, doi:10.1093/mnras/stx1715.