Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Rate constants for the formation of SiO and CS by radiative association[1] ROBERT FORREY, Penn State University, JAMES BABB, ITAMP, Harvard-Smithsonian, PHILLIP STANCIL, University of Georgia, BRENDAN MCLAUGHLIN, CTAMOP, Queen's University Belfast — Rate constants for the formation of SiO and CS by radiative association are calculated using accurate molecular data. The rate constants include both direct and indirect formation processes. The indirect processes (inverse rotational and electronic predissociation) are evaluated for conditions of local thermodynamic equilibrium (LTE) and also in the non-LTE limit of zero radiation temperature and atomic density. Phenomenological rate constants for SiO and CS formation in realistic astrophysical environments are expected to lie in-between these limiting cases. An analytic formula is used to fit the rate constants for convenient use in astrophysical applications.

[1]Supported by NSF PHY-1503615 and NASA NNX16AF09G

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Date submitted: 25 Jan 2018 Electronic form version 1.4