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Preinflationary Radiation-Dominated Era from Scalar, Fermion, and Gauge Fields TAYLOR ORDINES, ERIC CARLSON, Wake Forest University — A radiation-dominated preinflationary era is essential in many inflationary models that attempt to reproduce the anomalously low quadrupole moment in the CMB power spectrum. Despite its importance, the radiation-dominated era is often just an assumption, and few arguments are ever given for its presence. Semiclassical gravity provides a context for examining the behavior of quantum fields in such a preinflationary era. In previous work, we demonstrated that for scalar fields a radiation-dominated era naturally arises if the Universe started near zero size. In our current work, we extend this argument to fermion and gauge fields.

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