

# Black hole induced star formation in the early universe

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In the local universe have been observed enhancements of star formation due to relativistic jets from accreting black holes (BHs). These BH “positive feedbacks” take place by the interaction of BH-jets with high-density molecular clouds, which leads to compression of the gas and subsequent enhancement of star formation. This BH-jet triggering mechanism of star formation must have been more important in the early universe, for two reasons. First, the global gas density in the universe evolves with redshift  $z$  as  $(1+z)^3$ , and at  $z = 30$  the global gas density would be more than  $10^4$  times the global gas density in the local universe. Second, recently have been increasing indications that in the galaxies of the early universe massive BHs came first and grow faster than the stellar populations. In this context, I propose that the rapidly growing BH seeds of the SMBHs of  $10^9 M_\odot$  in quasars at  $z = 7$  may have induced the formation of the first massive stars of Pop III.

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