Star Formation in AGNs: Which Came First, Stars or Black Hole?

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It is now widely believed that the growth of massive black holes is closely linked to the formation of galaxies, but there have been few concrete constraints on the actual physical processes responsible for this coupling. Investigating the connection between AGN and starburst activity may offer some empirical guidance on this problem. I summarize previous observational searches for young stars in active galaxies, concluding that there is now compelling evidence for a significant post-starburst population in many luminous AGNs, and that a direct, causal link may exist between star formation and black hole accretion. Quantifying the ongoing star formation rate in AGNs, however, is much more challenging because of the strong contamination by the active nucleus. I discuss recent work attempting to measure the star formation rate in luminous AGNs and quasars. The exceptionally low level of coeval star formation found in these otherwise gas-rich systems suggests that the star formation efficiency in the host galaxies is suppressed in the presence of strong AGN feedback.

References:
Ho, L. C., Darling, J., & Greene, J. E. 2008a, ApJS, 177, 103