92
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摘要: We have used data from the Herschel Astrophysical Terahertz Large-Area Survey (H-ATLAS) at 250, 350 and 500 mu m to determine the far-infrared (FIR) properties of 50 broad absorption line quasars (BAL QSOs). Our sample contains 49 high-ionization BAL QSOs (HiBALs) and one low-ionization BAL QSO (LoBAL) which are compared against a sample of 329 non-BAL QSOs. These samples are matched over the redshift range 1.5 <= z < 2.3 and in absolute i-band magnitude over the range -28 <= M-i <= -24. Of these, three BAL QSOs (HiBALs) and 27 non-BAL QSOs are detected at the >5 sigma level. We calculate star formation rates (SFRs) for our individually detected HiBAL QSOs and the non-detected LoBAL QSO as well as average SFRs for the BAL and non-BAL QSO samples based on stacking the Herschel data. We find no difference between the HiBAL and non-BAL QSO samples in the FIR, even when separated based on differing BAL QSO classifications. Using Mrk 231 as a template, the weighted mean SFR is estimated to be approximate to 240 +/- 21M(circle dot) yr(-1) for the full sample, although this figure should be treated as an upper limit if active galactic nucleus (AGN)-heated dust makes a contribution to the FIR emission. Despite tentative claims in the literature, we do not find a dependence of C IV equivalent width on FIR emission, suggesting that the strength of any outflow in these objects is not linked to their FIR output. These results strongly suggest that BAL QSOs (more specifically HiBALs) can be accommodated within a simple AGN unified scheme in which our line of sight to the nucleus intersects outflowing material. Models in which HiBALs are caught towards the end of a period of enhanced spheroid and black hole growth, during which a wind terminates the star formation activity, are not supported by the observed FIR properties.
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