

Multi-wavelength properties of submillimeter galaxies

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Abstract

We have assembled a sample of 5 X-ray and submm-luminous QSOs which are therefore both growing their central black holes through accretion and forming stars copiously. Hence, they are good laboratories to investigate the co-evolution of star formation and AGN. Our XMM-Newton observations reveal strong outflowing ionized winds from the QSOs which could terminate star formation. SCUBA maps have shown that they are also surrounded by submm source overdensities, placing them in the centres of high density peaks of the $z \approx 2$ Universe. In one case we have already proved that the submm sources are indeed massive (but with undernourished black holes, if any) star-forming galaxies associated to the QSO. We present here the analysis of new PACS and SPIRE Herschel data (together with our existing and archival optical-NIR-MIR observations) on the central QSOs. Both AGN (direct and reprocessed) and Star Formation (SF) emission are needed to model their Spectral Energy Distributions (SEDs). The fits are reasonable in all cases except perhaps for RXJ1633. We confirm the presence of strong FIR emission due to SF in these objects, at the ULIRG/HLIRG level, with SFR 1000-2000 M_{\odot}/y . Our sources have different relative direct/reprocessed and AGN/SF contributions. We therefore confirm that these objects are both forming stars copiously and growing by strong accretion, but with diverse properties.