NGWULIR1353+2920: Compact group of galaxies with ~10 members. Multiple interactions around the central dominant galaxy. Some evidence for dust and knots. Several additional companions at edge of field.
IR14348–1447: Double nucleus. Double tidal tails. Very mottled (dusty and clumpy) emission around nuclei and in tail structures. Faint nearby companions. Very dusty between nuclei. Possible shells.
QDOTULIR1858+6527: Highest-redshift object in this selection. Many bright nuclei (knots?). One strong tidal loop, plus additional filaments (perhaps bubbles). Many small nearby companions. Diameter of system is over 50 kpc.
IR19254–7245 (SuperAntennae): Well known double nucleus and very long tidal tails (only one shown in our image). Tail is very narrow and straight. Very little evidence for clumpiness or knots in core region, except for dust-induced irregularities.
IR19297–0406: Very complicated nuclear region (multiple nuclei). Several tidal tails on different scales. Several small clumps just outside core region. Clumpy tail extending to the upper right. Perhaps two fainter tidal tails extending to the right.
IR20414–1651: Dusty, mottled, elongated core. Probably a single nucleus. Some faint knots above the nucleus. Several companions, including bright spheroidal galaxy to the upper right and a fainter disturbed diffuse companion to the left.

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OPTICAL VARIABILITY OF ACTIVE GALACTIC NUCLEI

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We use the starburst model of AGN (SBM; Terlevich et al. 1992) to study the variability of a sample of 46 QSOs from the Hamburg Quasar Monitoring Program (Borgeest & Schramm 1994). In the SBM, the variability is produced by supernovae and their compact remnants. We adopt a prescription for the light-curve of a single SN with two parameters (Aretxaga & Terlevich 1994): the total energy in the B-band, and the time for the onset of the radiative phase, t_{rad}. We assume that the SN rate scales linearly with the mean AGN luminosity. Recent UV studies indicate that the variability generally increases towards shorter wavelengths, and we have modeled this effect by assuming that the relative variability at the rest-frame wavelength λ is related to the relative variability at the rest-frame B-band as $\delta f_\lambda / f_\lambda = \gamma \log(\lambda_* / \lambda)\, \delta f_B / f_B$, where f_λ is the AGN flux and λ_* is the wavelength at which the variability is negligible. This expression, with $\gamma \approx 3.5$ and $\lambda_* \approx 11250$Å, provides a good fit to the available data (e.g, Edelson, Krolik, & Pike 1990; Paltani & Curvoisier 1994). The bias in the estimates of the variability, due to the usually small rest-frame time interval covered by observations, has been evaluated through Monte Carlo simulations of the light-curves. For reasonable values of the SN total energies, we find that it is possible to explain the variability observed in the HQM survey if t_{rad} is about $10 - 50$ days. These timescales indicate circumstellar densities as high as 10^8 – 10^9 cm^{-3} to rapidly dissipate the energy of the compact remnants.

Aretxaga, I., & Terlevich, R. 1994, MNRAS, 269, 462
Borgeest, U., & Schramm, K.-J. 1994, A&A, 284, 764
Edelson, R., Krolik, J., & Pike, G. 1990, ApJ, 359, 86
Paltani, S., & Curvoisier, T.J.-L. 1994, A&A, 291, 74P
Terlevich, R., Tenorio-Tagle, G., Franco, J., & Melnick, J. 1992, MNRAS, 255, 713

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INVESTIGATIONS OF THE INTERACTION–ACTIVITY CONNECTION

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Lists are presented of the studies that have been done to study the likely Interaction-Activity connection among galaxies. *Both observational evidence and theoretical supporting models are identified.* The information presented here is excerpted from the author's more extensive review paper on this subject (Borne 1996*a*, Interacting Galaxies in Pairs, Groups and Clusters, ApLett&Comm, in press).
a) Observational Studies:
QSOs (e.g., Stockton & MacKenty 1983, 1987; Yee & Green 1984; Hutchings & Neff 1988, 1990*a*, 1992b; Stockton & Farnham 1991; Block & Stockton 1991; Bahcall et al. 1995; cf., Smith & Heckman 1990*a*).
AGN (e.g., Dahari 1984; Keel et al. 1985; MacKenty 1989; Hummel et al. 1990; Hutchings & Neff 1990*b*; MacKenty, Simpson, & McLean 1990; Mazzarella, Bothun, & Boroson 1991; Keel & van Soest