

MERGING GALAXIES WITH ACTIVE NUCLEI

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We are investigating a sample of nearby interacting and merging galaxies showing starburst properties and/or nonthermal nuclear activity (e.g. Mrk 231, Mrk 739, Mrk 1027, NGC 2992, Arp 92).

We have obtained deep optical images (B,V,R) as well as deep X-ray images (*ROSAT* HRI/PSPC) for all these targets. Medium and high resolution optical spectra have also been taken at various slit positions to determine the excitation of the nuclear and extra-nuclear emission regions as well as the kinematics of the gas. We synthesize the observed absorption line spectra using population and evolutionary models to determine the nuclear and circumnuclear stellar components and to estimate the age of the starburst regions. There are indications for the nearly simultaneous triggering of starburst and nonthermal activity in Seyfert galaxies due to tidal effects. The goal of our present study is the search for interrelations between nuclear activity on the one hand and morphology, stellar composition and kinematics of the merging galaxies on the other hand.

One of our target galaxies is Mrk 266. The extreme properties of this double nucleus system have been demonstrated in many earlier publications (e.g. Petrosian, A.R. et al. 1980, *Afz*, **16**, 621; Osterbrock, D.E. & Dahari, O. 1983, *ApJ*, **273**, 478; Kollatschny, W. & Fricke, K.J. 1984, *A&A*, **135**, 171; Mazzarella, J.M. et al. 1988, *ApJ*, **333**, 168; Hutchings, J.B. et al. 1988, *AJ*, **96**, 1227; Wang, J. et al. 1997, *ApJ*, **474**, 659). We compare new optical images (including *HST* data) with very deep X-ray images (40 ksec). The similar morphologies of the $V - R$ colors and X-ray structures indicate their same physical origin. The north-eastern LINER nucleus is more compact in all frequencies (optical, UV, X-ray, radio) in comparison to the south-western Seyfert 2 nucleus. In contrast to earlier observations three different components can be seen in the X-ray data: the two merging nuclei and a strong extended northern region. A publication of our results is in preparation (Kollatschny et al.).

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