

Contributed Talk

Splinter AGN

TESTING THE CONNECTION BETWEEN MAJOR MERGERS AND THE  
TRIGGERING OF HIGH-ACCRETION BLACK HOLES

V. Marian<sup>1</sup>, K. Jahnke<sup>1</sup>, M. Mechtley<sup>2</sup>

<sup>1</sup>*Max-Planck-Institut für Astronomie*

<sup>2</sup>*Arizona State University*

With the feedback of Active Galactic Nuclei (AGN) possibly playing a role in the truncation of star formation and therefore severely affecting the evolution of a galaxy, it is of utmost interest to understand the processes involved in the growth of black holes. For decades, it was a widely accepted scenario that the occurrence of AGNs are a result of a merger of gas-rich galaxies.

However, over the last years the relevance of major interactions for the growth of black holes has been extensively tested, leading to a model in which the merging of two gas-rich galaxies is playing a sub-dominant part for the occurrence of an AGN. This circumstance holds in particular true for the majority of the black holes ( $M_* < 10^{11.7} M_\odot$ ) since  $z \sim 1$ , but also black holes with the highest masses at  $z = 2$  and  $z = 0.2$ .

In our current work we want to test whether this conclusion is also valid for black holes with highest accretion rates ( $L/L_{Edd} > 0.3$ ). As large amounts of gas and its transfer to the central region is needed, it may very well be that for this particular population of black holes major mergers are still the best or maybe only suitable mechanism. To examine this question we analyze the merger fractions of 21 QSO host galaxies at  $z = 2$  (peak of black hole growth), observed by HST and 19 at  $z = 0.2$  observed with VLT/FORS2 and compare them to the fractions of two matched samples of inactive galaxies. As all other parameters between the QSO samples and the respective selections of inactive galaxies are comparable, a significant increase of the merger fractions in regard to the QSOs means that major merging is in those particular cases a trigger for the growth of black holes.