

Book Review: *Mass Transfer Induced Activity in Galaxies*, edited by Isaac Shlosman

(Cambridge University Press, 1994 (\$69.95))

This book represents the proceedings of a conference held at the University of Kentucky, Lexington on April 26–30, 1993. The conference was perhaps the first to focus exclusively on the role of mass inflow in triggering and fuelling “activity”—both active galactic nuclei and starbursts—in the central regions of galaxies. Energetic arguments show that galaxy-wide supplies of gas are needed to fuel quasar-type activity. The problem addressed here is how some of this gas can lose almost all of its specific angular momentum and end up in an accretion disk around the central black hole.

The proceedings are ordered from smallest to largest scales. Removal of angular momentum in the accretion disk (10^{-2} pc scale) is a tricky problem—almost all the papers here are theoretical and the few observational ones tell us nothing about the effective source of viscosity. Further out (tens of pc to kpc) in the “circumnuclear region”, the putative inflow is more amenable to observational attack, and a number of papers focus on the observed kinematics of both ionized and molecular gas. Because of their known capabilities in forcing gas inwards, bars receive special attention. Nuclear starbursts are strongly enhanced by (and may even require) the presence of a bar, but the role of bars in stimulating active nuclei is not so clear. On

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the largest scales (tens of kpc), attention is given to the relationships between nuclear activity, the properties of the host galaxy and galaxy–galaxy interactions. The remarkable propensity of some interactions for driving gas into the inner few hundred parsecs is demonstrated by a number of papers concerning observations and numerical simulations of this phenomenon. The book ends with sections on gas dynamics in ellipticals and activity in galaxies at large redshift.

I found this an extremely valuable book. The focus on a particular aspect of nuclear activity allows an in-depth coverage so often lacking in conferences covering the entire spectrum of galaxy activity. These proceedings will be of interest to many astronomers, not only those working directly in the topics of active galaxies and starbursts, but also those with speciality in stellar or gaseous dynamics. It will remain a required work of reference for many years to come.

ANDREW S. WILSON
*Astronomy Department,
University of Maryland,
College Park, Maryland 20742*