

# BROAD ABSORPTION LINE PLASMA OUTFLOWS FROM QUASARS. FEEDBACK FROM ACCRETING SUPERMASSIVE BLACK HOMES

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Gas outflows are an important component of Active Galactic Nuclei phenomena. The outflows are a potential source of feedback that regulates the evolution of the central black hole, the host galaxy, and the intergalactic medium. In the rest-frame UV spectra of 10%–20% of all quasars outflows are manifested in blueshifted broad absorption lines (BALs), which can reach velocities as high as 50,000 km s<sup>-1</sup>.

In this talk, I discuss current models on the nature of BAL outflows and the spectroscopic techniques used to study these outflows. Then, I show that the structure and evolution of the outflow depends not only on the radiative energy of the central engine but also on variability of the flux with time. Variations in the UV ionizing continuum yield non-equilibrium conditions in the plasma and create supersonic cooling and heating fronts that give the outflows their complex kinematic structure. Finally, I describe our current efforts in modeling the outflows through time dependent photoionization and hydrodynamics techniques.

Astrophysics  
Seminar

All interested  
persons are  
cordially  
invited to  
attend.