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lines. These observations suggest that the annihilation region must be deep in the gravitational potential, but cannot be at the site of the positron production. This suggests that electron-positron pair winds may play a role in transporting the positrons from the site of production to that of annihilation [2]. The suggestion that there are quasi-steady-state flows from within the inner disk in turn suggests that the site of the origin of the hard power law radiation may be the same as that of the positrons, but that it is not a static corona, but rather associated with a steady flow from the inner disk.

Another special aspect of the BHXN is that two of them, V 404 Cyg and A0620-00, have revealed enhancements in Li in the atmosphere of the dwarf companion. This is also seen in Cen X-4, a neutron star transient, so the Li is not a unique signature of black hole systems. Nevertheless, the Li represents an important clue to the evolution of the system and to the physical processes that occur there. Two interesting possibilities are spallation in the disk or the companion star requiring energetic particles, or a precursor phase with a Thorne-Żytkow object, a buried neutron star in which the deep hot-bottom convective envelope may generate Li and mix it to the surface.

References: [1] Kim et al., this volume. [2] Moscoso and Wheeler, this volume.

GAS DYNAMICS FOR ACCRETION DISK SIMULATIONS.
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The behavior of accretion disks can largely be understood in terms of the basic physical processes of mass, energy, and momentum conservation. Despite this, detailed modeling of these systems using modern computational techniques is challenging and controversial. Disturbing differences exist between methods used widely in astrophysics, namely Eulerian finite-difference techniques and particle codes such as SPH. Therefore neither technique is fully satisfactory for accretion disk simulations. This paper describes a new fully Lagrangian method designed to resolve these difficulties.