Abstract for an Invited Paper
for the HAW05 Meeting of
The American Physical Society

Evolution and Merging of Binaries with Compact Objects

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We find that when accretion is included in the standard scenario for binary neutron stars, the first-born neutron star always goes into a black hole in the common envelope evolution whuich is one stage in the standard scenario for binary evolution, We consequently have to invent a new scenario for binary neutron star evolution, which involves them burning helium at the same time, so that they go through common envelope evolution at that stage. Consequences of our work are: 1) LIGO should see the order of 20 times more black hole, neutron-star mergings than those of binary neutron stars. 2) The two neutron stars in a binary should be very close, less than 4 percent, difference in mass.