나선은하 핵 나선팔의 생성

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We have investigated the effects of massive black hole (MBH) on theformation and evolution of nuclear spirals in barred galaxies, using a smoothed particle hydrodynamics (SPH) calculations to simulate gas motions under galactic potentials including the self gravity of gas.

We used fixed potentials for the axisymmetric components, such as bulge, disk, halo and MBH and rotating non-axisymmetric potentials for bars. Our simulations show that nuclear spirals are likely to form in the hot gaseous disk under the gravitational potential of a MBH.

Our models suggest that nuclear spirals observed in real galaxies which have no nuclear bars are made from the disk gas which moves into the nuclear region inside the IILR in the presence of a MBH.