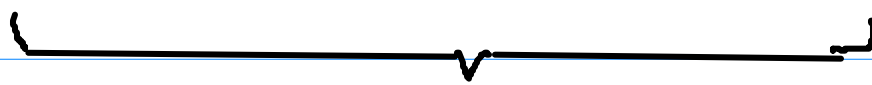


THE CONSEQUENCES OF GALAXY COLLISIONS / INTERACTIONS

- 1) ONE GALAXY CAN STRIP AWAY GAS AND DUST FROM ANOTHER GALAXY :



- 2) GRAVITATIONAL DISTORTION OF GALAXIES AS THEY PASS NEAR EACH OTHER :

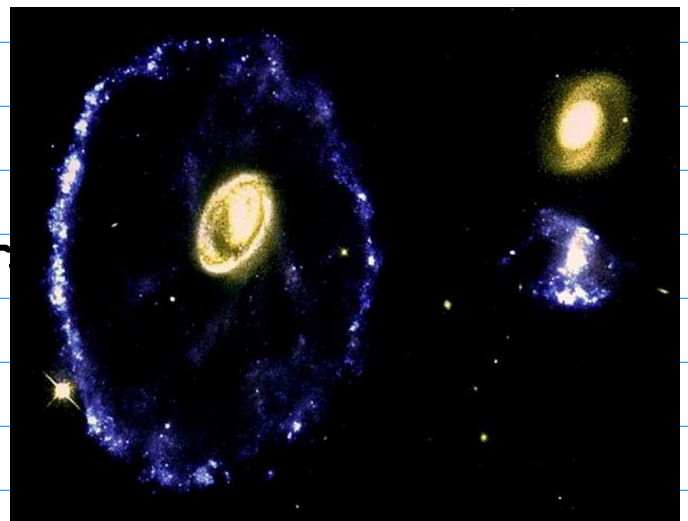


A SIMULATION OF HOW THE
SHAPE OF THE WHIRLPOOL
GALAXY COULD HAVE COME
ABOUT

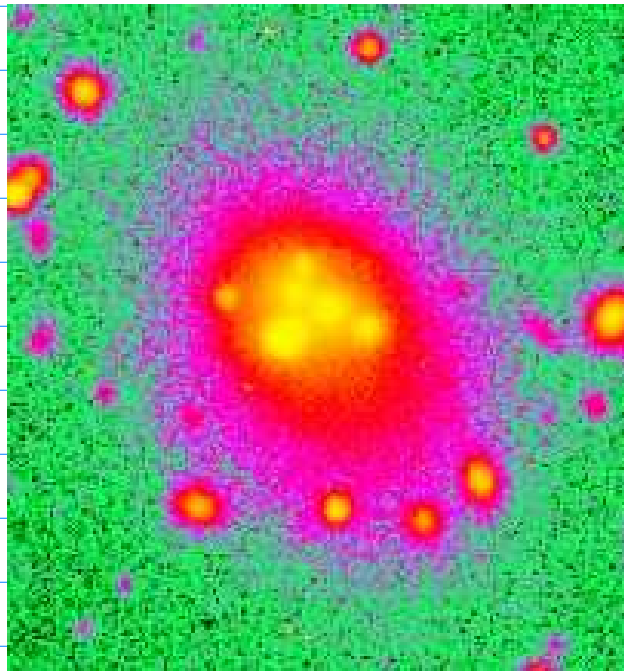
↑
WHIRLPOOL
GALAXY

3) GASS COMPRESSION AND THE BURST OF STAR
FORMATION :

CARTWHEEL
GALAXY



4) GALAXY MERGERS :

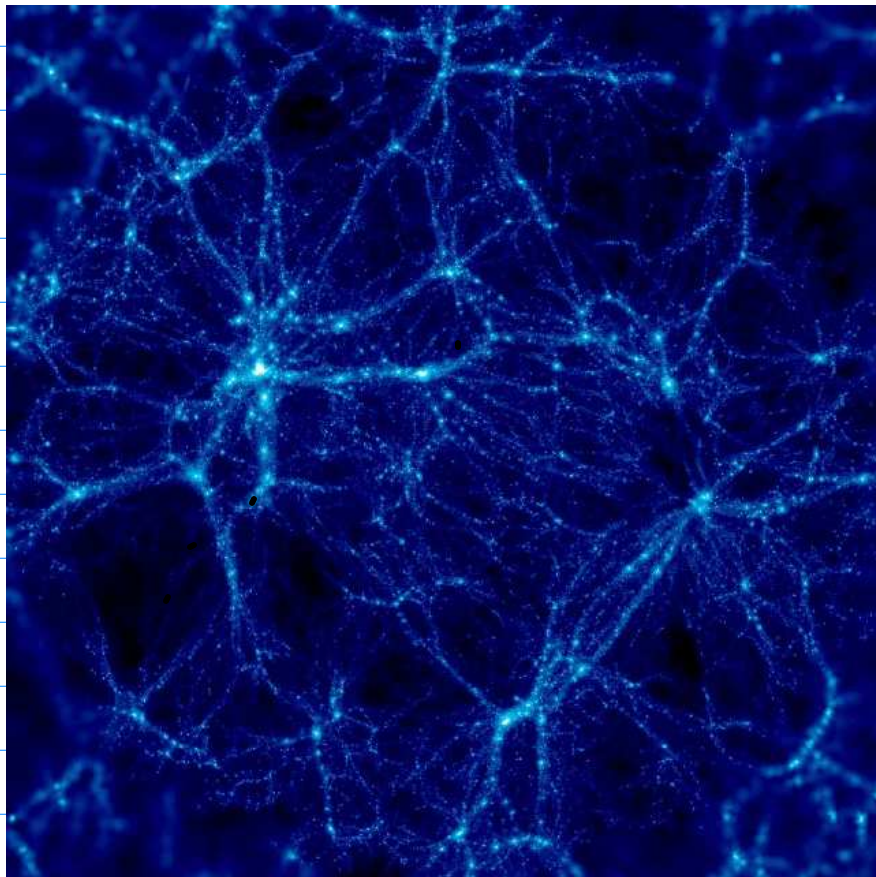


AN ELLIPTIC GALAXY WITH MULTIPLE NUCLEI

5) TRIGGERING OF THE SPIRAL DENSITY WAVES (SPIRAL ARMS) IN SPIRAL GALAXIES.

ONE WOULD EXPECT THAT THE COLLISIONS BETWEEN THE GALAXIES ARE MORE FREQUENT IN THE RICH GALAXY CLUSTERS THAN IN THE POOR CLUSTERS. SUCH COLLISIONS WOULD RESULT IN STAR FORMATION FORGING THE GALAXY TO USE UP ITS GAS AND DUST. THIS CONCLUSION IS IN AGREEMENT WITH THE OBSERVATION THAT ELLIPTICALS AND S_0 SPIRALS ARE MORE COMMON IN THE RICH GALAXY CLUSTERS.

CLUSTERS OF GALAXIES FORM EVEN BIGGER STRUCTURES - THE SUPERCLUSTERS (CLUSTERS OF CLUSTERS). LOCAL GROUP BELONGS TO THE LOCAL SUPERCLUSTER. SUPERCLUSTERS FORM FILAMENTS SEPARATED BY VOIDS:



A SMALL PERCENTAGE OF GALAXIES ARE SO-CALLED ACTIVE GALAXIES - THEY EMIT A LARGE AMOUNT OF ENERGY VIA RADIATION FROM THE SMALL VOLUME IN THEIR NUCLEI (THEY ARE SAID TO HAVE ACTIVE GALACTIC NUCLEI [AGN])

1) SEYFERT GALAXIES (AFTER CARL SEYFERT) -
THEY ARE SPIRAL GALAXIES AND THE INTENSITY
OF THEIR RADIATION VARIES ON TIME SCALE OF
MINUTES.



FROM THIS WE CAN CONCLUDE THAT THE SIZE
OF THE ACTIVE REGION RESPONSIBLE FOR RADIATION
CANNOT BE BIGGER THAN A FEW LIGHT-MINUTES (\sim
 $\sim 1 \text{ AU} \ll \text{DIAMETER OF THE GALAXY}$).