Milky Way owes its arms to crashes

Washington: Two powerful collisions with a dwarf galaxy in the past two billion years may have been the cause of the spiral arm structure of the Milky Way, scientists say.

The new findings, published in the journal Nature, hint that impacts with even relatively small galaxies have played an important role in shaping galactic structure throughout the universe, the researchers said.

In trying to explain the shape of our own galaxy, the Milky Way, with its prominent spiral arms rooted in a central bar, scientists have traditionally dismissed the influence of outside forces, although astronomers have seen shape-changing mergers of other galaxies. But in the new study, scientists focused on the nearby Sagittarius dwarf galaxy,

COLLISION COURSE: A computer generated image of the impact of the Sagittarius dwarf elipitcal galaxy (blue stream) with the Milky Way galaxy (multicolored disk) seen in the Hubble deep field

much of which had been ripped apart by the gravitational pull of the Milky Way, leaving debris that forms a huge but very faint stream of stars around our galaxy, LiveScience reported.

Altogether, this dwarf galaxy might have once been far more substantial, maybe 100 times more massive, they found. "Sagittarius was among the largest of the Milky Way's dwarf satellites before it began to be torn apart by galactic tides," said lead author Chris Purcell. "It had always been assumed that the Milky Way had evolved relatively unperturbed over the past few billion years in terms of its global structure and appearance." However, in computer simulations, the scientists found this dwarf galaxy's collision with the Milky Way might have had dramatic consequences. PTI