# Milky Way Fortified with Calcium

Sara Goudarzi

LIKE milk, our Milky Way Galaxy and the rest of the universe is fortified with calcium, the stuff of strong bones. In fact, the cosmos contains 50 percent more calcium than previously thought, a new study suggests. Calcium is a soft metal and the fifth most abundant element in Earth's crust. Organisms depend on it for chemical assistance with muscle contraction, bones and tooth structure, blood clotting, fluid balance in cells, regulating the heartbeat and other processes. Explosions of massive stars produce and eject lots of heavy elements into space. The building blocks of new stars, planets and life are released during the final moments of these supernova blasts [video]. Iron that aids in producing our red blood cells and the calcium that hardens our bones are made up of atoms that come from these violent outbursts.

**A universal X-ray**

Stellar matter ejected from these explosions form swirls of hot gases that surround galaxies. The calcium atoms in the hot gas emit X-rays with a specific wavelength, which can be detected with instruments aboard ESA's XMM-Newton X-ray observatory.

"The amount of X-ray radiation at that wavelength is related to the real amount of calcium," said Jelle de Plaa, a researcher at the SRON Netherlands Institute for Space Research. De Plaa and colleagues looked to distant clusters of galaxies containing 20 to 30 percent of visible matter to measure the amount of calcium.

"In clusters, a lot of the supernova products end up in the hot gas," De Plaa told *SPACE.com*. "Clusters are in many ways the big cities of the universe." The researchers compared the amounts of the products expected from theoretical models of supernovae with measurements from XMM-Newton X-ray observatory within 22 galaxy clusters. The observed amounts for seven elements oxygen, neon, silicon, sulfur, argon, iron and nickel jibed with theoretical predictions, but the calcium did not match up.

"Since we checked that there was nothing wrong with our measurements, we concluded that the supernova model (theoretical) must be under predicting the calcium abundance," De Plaa said.

**Got calcium?**

Supernovae explosions happen in every corner of the universe, but their influences can be felt down on Earth.

"If certain types of supernovae indeed produce more calcium, then this means that there must be more calcium in the universe compared to the predictions from the supernova models," De Plaa said. "Then this is not only true for clusters, but also for our solar system and everything that lives in it, because we are mostly made of the same supernova products."

Source: Space.com


1ST TIME IN BANGLADESH

ADMISSION DRIVE-2007

★Admission in any session ★Seminar ★Presentation

★ Admission and Visa assistance are Free of Cost* ★Scholarship

Participants:

London South Bank University,UK
University of Essex, UK
Middlesex University, London, UK
Greenwich School of Management, UK
EASB Institute of Management, Singapor
(TM)/CFS (BD)/01? 06(07)
FIT, Cyprus
West End College, UK
SAIT Polytechnic, Canada
Icon College of Technology and Management, UK
Thompson Rivers University, Canada
INTI College Sarawak,Malaysia
Americanos College,Cyprus
CIC, Melbourne, Australia
IUCT, Twintech,Malaysia
South Korea, Ireland and manymore.

*Dhaka Venue:* WVA Auditorium
House# 20, Road# 16(New),
27 (Old) Dhanmondi, Dhaka.
*Date:* 23-24 February 2007
*Time:* 9.00AM to 8.00PM

*Sylhet Venue:* Hotel Fortune Garden
29/A Bongobir Road, Nair Pul, Sylhet.
*Date:* 26 February 2007
*Time:* 10.00AM to 5.00PM

*conditions applyed

Organize by:
Center for Foreign Studies (CFS)
worldwide admission provider
1/12, Block-C, Lalmatia,Dhaka.Tel:8159612,Cell: 01199121331,Web: www.cfs-world.com