VIOLENT IMPACTS IN THE COSMOS BETWEEN GAMMA RAY AND NEWBORN SUPERNOVAE

A NEW STUDY ON BLACK HOLES OPENS NEW PATHS OF RESEARCH AND NEW DOUBTS.

Her name is Laura Becerra and she is one of the researchers at ICRANet Pescara. A student of the IRAP PhD of the International Center, a twenty-seven years old Colombian girl, she published her new article in the prestigious American journal "The Astrophysical Journal", that opened the way to new questions on the issue of black holes. For the first time in this article it has been studied in detail what happens to binary systems during the hypercritical accretion and it has been possible to see how the formation of a black hole occurs.

Already in 2012 some scientists of ICRANet, an international research center guided by professor Ruffini, theoretically estimated the growth rate of the material on a neutron star caused by the explosion of a supernova, in the immediate proximity. Thanks to the simulations implemented by Dr Becerra and to the work of the ICRANet team, the international research community on relativistic astrophysics got detailed reports on the simulations of supernovae explosions from stellar cores composed by iron, carbon and oxygen in a binary system, and of their impact on a companion star. These cores by exploding eject a large amount of material that falls over the neutron star and it increases its mass. The simulations of ICRANet team, involving more than one million particles, confirm the estimates that they already proposed in 2001 and developed then in 2012, and define the exact moment of the origin of a black hole. Moreover, for the first time the concept of the cosmic matrix is illustrated as the astrophysical process that arises from a binary system, composed by two celestial bodies (FeCO core and a neutron star), and it evolves in a new binary system, composed by two new celestial bodies: a black hole and a new neutron star.

Prof. Ruffini, satisfied by the new results obtained by ICRANet team, specified: "This is one of the many results we reached in this last period. We will continue on this path, trying to support in the best way our researchers of the international IRAP PhD program and trying to help their potential to come out".

This new publication replies to some important questions about the theory of gamma-ray bursts and at the same time opens a new line of research, giving birth to new questions. These results are supported by numerical simulations developed at Los Alamos National Laboratories in the USA by Chris Fryer and his team and, in the next 6 months, Laura Becerra will move to Los Alamos in order to foster the cooperation within ICRANet network, in particular between ICRANet seat in Tucson, Arizona, and the Los Alamos National Laboratories.

In attachment to this email you will find the press release with related images.

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