MJESEČNI ZNANSTVENI KOLOKVIJ NA SVEUČILIŠTU U RIJECI

Primordial black holes as the dark matter?

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Predavanje će se održati na engleskom jeziku

SAŽETAK

Black holes formed naturally at the present epoch of the universe have a minimum mass of between two and three times the mass of the sun, but much smaller ones might have been formed in the very early universe. The idea of these has a long history going back more than forty years, but recently they have attracted renewed attention as possible candidates for being the dark matter which is thought to pervade the universe. Their case has been strengthened due to problems arising for other potential candidates. A high-profile paper claiming to have ruled them out as an explanation has been strongly criticised. So what is the situation? Is this story plausible? If not, may larger black holes provide the answer? This talk will give an overview.

ŽIVOTOPIS PREDAVAČA

John Miller was born in 1948 in London, U.K. and has British nationality. He is currently based at the Department of Physics of the University of Oxford, but also has regular visits to SISSA Trieste where he is now emeritus. He got his B.Sc. degree in Mathematical Physics from the University of East Anglia in 1971, before going to the Department of Astrophysics in Oxford to work with D.W. Sciama and S. Chandrasekhar on a thesis entitled „Computer studies of the gravitational collapse of stars in a full general-relativistic treatment“ for which he was awarded the D.Phil. degree in 1974. He was subsequently employed in the same department as a post-doc and junior faculty until 1983 when he went to Trieste to work at SISSA, first in a contract post and then as a tenured professor (1989 – 2011). He continued his association with Oxford during this time and became professor there in 2003, a post which he still holds. His research has been in relativistic astrophysics, particularly using numerical methods for studying relativistic hydrodynamics. The work is theory-based but keeps a close link with related observations. Subjects studied include: gravitational collapse to form black holes, neutron-star physics, accretion onto compact objects, gravitational waves, and early-universe physics.