

## Looking for the Dark Matter hiding in the Universe

**ABSTRACT:** Dark Matter constitutes more than 80% of the total mass content of the Universe. We are sure that it exists and we guess some of its main properties: it has to be “cold” (meaning lacking thermal motion, perhaps because heavy), stable (essentially unchanged since the beginning of the Universe) and interact very feebly with ordinary matter. But we have no clue about its actual nature. It is embarrassing and humbling, it is one of the most pressing issues in cosmology and particle physics. A small army of physicists and astrophysicists goes to work every day to look for clues to the solution. They build ultraclean experiments down in the deepest mines, they install giant detectors onboard the International Space Station and they scrutinize the products of the highest energy particle collider on Earth, the Large Hadron Collider at CERN, near Geneva. At the same time, their colleagues invent new and ever more refined theories that encompass the required properties and that can explain the experimental results. Is the Universe ready to deliver the key to the mystery?