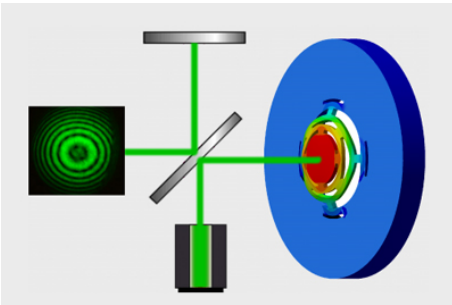




RESEARCH

BUGS LISTEN TO SPACE-TIME NOISE

HUMOR (Heisenberg Uncertainty Measured with Opto-mechanical Resonators), the first experiment to have designed and implemented a new way of probing space-time at extremely small dimensions. Born

from a collaboration between University of Florence and INFN, LENS and CNR- National Institute of Optics, HUMOR has published the first results in the prestigious journal Nature Communications, putting a new upper limit on the exploration of space-time at microscopic levels. The very high precision measurement was made possible by the use of very sensitive "bugs", able to hear the faint noise of space-time fluctuations.

Using very low energy "bench" experiments, HUMOR researchers have, in fact, managed to carry out, by means of lasers and electromagnetic sensors, displacement and time measurements with a very high precision, detecting the microscopic vibrations of oscillators of different sizes and masses, from a few nanograms up to a few milligrams.

These instruments have not yet observed a space-time graininess, but they have managed to set new limits. The road to a clear understanding of the space-time fabric around us is still long, but the current results can already be used to verify the predictions of theories that seek to unify gravity and quantum physics, constituting an important starting point for the experimental analysis of these issues. ■



AWARDS

CLAUDIO PELLEGRINI WINS THE ENRICO FERMI AWARD

The Italian physicist Claudio Pellegrini has won the Enrico Fermi Award, one of the most prestigious scientific awards conferred by the US government. Established in 1956 in honour of the Italian Nobel laureate

two years after his death, the award has also been given to Charles V. Shank, of the Howard Hughes Medical Institute and of the Lawrence Berkeley National Laboratory. Presenting the award will be no less than the President of the United States, Barack Obama.

The Italian scientist will receive the Enrico Fermi Award for his pioneering studies on free-electron lasers (FEL). A technology that will enable, for example, the structure and function of biomolecules, such as proteins, to be studied with a level of detail, at the atomic level, never before achieved.

"It is a great honour to receive this award. I recently turned 80 and this is a wonderful and certainly unexpected birthday present", were the first words of the scientist, on learning the news.

A physicist at the SLAC National Accelerator Laboratory and the University of California, Los Angeles (UCLA), before moving to the US, Claudio Pellegrini began his career in the INFN National Laboratories in Frascati, where he worked on the design and development of electron-positron colliders, discovering in Adone an instability, the so-called "spin effect", which can limit the brightness of these circular accelerators. ■