INTERNATIONAL SOLVAY INSTITUTES BRUSSELS

2024 Jacques Solvay International Chair in Physics

Professor Samaya Nissanke

UvA & Nikhef, The Netherlands

New perspectives onto the universe in the era of multi-messenger astrophysics

Since the revolutionary discovery of gravitational wave (GW) emission from a binary black hole merger in 2015, the remarkable GW detectors LIGO, Virgo and KAGRA have detected at least ninety compact object mergers. These events are transforming modern astronomy. In particular, the first binary neutron star merger, dubbed GW170817, was observed in both gravitational and electromagnetic radiation, thus opening up a new era in multi-messenger astrophysics. The multi-messenger characterisation of such an event has enabled major advances into diverse fields of modern physics from gravity, high-energy astrophysics, nuclear physics, to cosmology. In this talk, I will present a review of gravitational wave observations to date, as well as my work in strong-field gravity astrophysics and how combining observations, theory and experiment have been key in making progress in this field. I will present the challenges and the opportunities that have emerged in multi-messenger astrophysics, and what the future holds in this new era.

Inaugural Lecture on Tuesday 1 October at 4:00 P.M.

COFFEE AND TEA WILL BE SERVED AT 3:45 P.M. AND DRINKS AT 5:00 P.M IN FRONT OF THE SOLVAY ROOM

UNIVERSITÉ LIBRE DE BRUXELLES - CAMPUS PLAINE
BOULEVARD DE LA PLAINE - ACCESS 2 - 1050 BRUSSELS
Quartier Jaune - Building N.O. - 5th Floor - Salle Solvay

Prof. Nissanke will deliver two other lectures on:
Thursday 3 October at UCL at 3:00 p.m. (Seminar room E349)
New perspectives onto the universe in the era of multi-messenger astronomy: the opportunities and challenges
Friday 4 October at ULB at 2:00 p.m. (Solvay Room)
New frontiers in cosmology and nuclear physics in the era of multi-messenger astronomy

Prof. Nissanke also gave two lectures on gravitational waves on:
Tuesday 14 May at 2:00 pm (ULB - FORUM.I.2072-2074)
Thursday 16 May at 10:00 am (ULB - FORUM.D.)

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