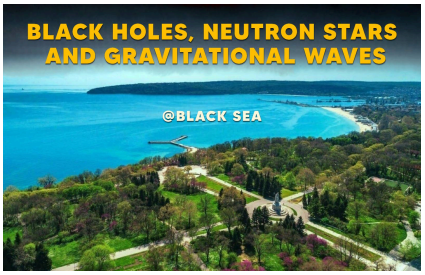

Contribution ID: **93** Type: **Oral presentation**

Black holes with scalar hair: from no-hair theorems to non-linear dynamics

Thursday 19 June 2025 09:40 (40 minutes)

According to General Relativity, astrophysical black holes are remarkably simple and their properties are determined by just two quantities, their mass and their angular moment. Gravitational waves and other strong gravity observations promise to probe the nature of black holes more precisely that ever before. Any observed deviation from the simple description General Relativity provides can reveal the existence of new fundamental fields, which would signal a paradigm shift in theoretical physics, astrophysics, and cosmology. I will use the well-studied case of an additional new scalar field, coming from either an extension of the Standard Model or of General Relativity itself, as a case study to discuss 3 questions: Can new physics leave an imprint on black holes? If yes, which observations are more sensitive to this new physics? And, are all black holes the same?

Author: SOTIRIOU, Thomas (University of Nottingham)

Presenter: SOTIRIOU, Thomas (University of Nottingham)