Sir Roger Penrose

Roger Penrose is a British mathematician, physicist and philosopher, born in 1931. He has received some of the highest honours as a scientist, including the Nobel Prize in Physics in 2020 and the Wolf prize in 2008. He was knighted in 1994. He is professor emeritus of mathematics at the University of Oxford.

Sir Roger is mostly known for his work on cosmology and general relativity theory. The Nobel prize was awarded to him because he

> « used ingenious mathematical methods in his proof that black holes are a direct consequence of Albert Einstein's general theory of relativity. Einstein did not himself believe that black holes really exist, these super-heavyweight monsters that capture everything that enters them. Nothing can escape, not even light. In January 1965, ten years after Einstein's death, Roger Penrose proved that black holes really can form and described them in detail; at their heart, black holes hide a *singularity* in which all the known laws of nature cease. His ground-breaking article is still regarded as the most important contribution to the general theory of relativity since Einstein. »

However, Penrose is also celebrated, well beyond the world of experts for :
- his description of « impossible forms », like the Penrose triangle, inspired by Max Escher ;
- his 1974 discovery of Penrose tilings, which are formed from two tiles that tile the plane nonperiodically. Penrose tilings were later applied to the study of quasi-crystals in physics ;
- his philosophical work, notably his 1989 book « The Emperor's New Mind », in which he argues that known laws of physics are inadequate to explain the phenomenon of consciousness, and his discussion of the consequences of Gödel's incompleteness theorem.

Penrose's research overs more than 60 years at the boundary between mathematics and physics epitomises a renewal of the deep connections between the two fields.

A few sources of information on Penrose
In English
- Wikipedia in English https://en.wikipedia.org/wiki/Roger_Penrose and in French https://fr.wikipedia.org/wiki/Roger_Penrose
- Press release of the Nobel foundation : https://www.nobelprize.org/uploads/2020/10/press-physicsprize2020.pdf
- How The Penrose Singularity Theorem Predicts then End if Space Time

En français :
- Entretien dans *la Recherche* avec R. Penrose : https://www.larecherche.fr/entretien-avec-roger-penrose-tout-ne-serait-quun-éternel-recommencement
- Dossier sur Roger Penrose dans Tangente incluant un entretien exclusif avec lui : http://www.tangente-mag.com/dossier.php?id=436
- La vidéo dans la série 5 minutes de Lebesgue, «Trous noirs et superradiance » de Jean-Philippe Nicolas
- Les articles suivants dans le site Images des maths :
  - Trous noirs de Thierry Barbot
  - Un parquet de Penrose, par Thomas Fernique et Evgeny Poloskin
  - Nobel de chimie et pavages de Penrose, par Elise Janvresse et Thierry de la Rue
  - Prix Nobel de chimie, quasi-cristaux et pavages de Penrose, par Pierre de la Harpe et Félix Kwok