On 14 September 2011 the Nobel Prize Rudolf Mössbauer passed away. Rudolf Mössbauer was born in Munich on January 31, 1929, and graduated in Physics with Heinz Meier-Leibnitz at Technische Universität München (TUM) in 1955. He opted for Physics notwithstanding his being a talented piano player. He went then to Max Planck Institute for Medical Research in Heidelberg, but since this institute did not belong to a University he went back to Heinz Meier-Leibnitz (TUM) and obtained his PhD degree in 1958, and there he remained as a scientific assistant.

In 1960 he was invited to the Institute of Nuclear Research (CalTec) in Pasadena, there he became full professor, and was awarded the Nobel Prize in Physics. In 1964 he went back to TUM as Full Professor until 1997 when he became Emeritus Professor. From 1972 to 1977 he was Director of the Max Planck Institute for Nuclear Physics in Heidelberg. From 1997 to 2000 he was part of the Scientific Committee of the Laboratory Nazionale del Gran Sasso (LNGS, Italy). He received several awards and was member of many Academies among which the Accademia Pontificia delle Scienze and Accademia Nazionale delle Scienze.

Mössbauer effect was of a historical importance as recognised in 1961 by the Nobel Prize for the discovery, occurred in 1958 during his PhD research work, of recoils and y-ray resonance. Mössbauer found that -rays emitted by iodine-131 could be absorbed by a target of the same isotope in a recoilless way, with an energy equal to the energy emitted by the iodine-131 source. This effect was now referred to as the “Mössbauer Effect”.

The radiation emission occurs when an atomic nucleus undergoes an energy transition between two nuclear levels. To conserve momentum, the emitting nucleus recoils in the opposite direction with respect to the one Mössbauer discovered that under specific conditions it is possible to get y-ray emission without recoil of the emitting nucleus. This is possible, e.g., when the nucleus is tightly bound in a crystalline lattice. The y-ray energy is transmitted to the whole lattice therefore the emission is possible, for example, in the 3He which shows a large recoil energy. The y-ray emission is then transmitted to the whole lattice and can be detected with a simple detector.

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