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Eric's impact on the r-process nucleosynthesis

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The rapid neutron-capture process, or r-process, is one of the major nucleosynthesis processes called for to explain the origin of about half of the elements heavier than iron in the Universe. From the nuclear physics side, the r-process requires the knowledge of the neutron capture cross section by exotic neutron-rich nuclei, hence of the neutron-nucleus optical model potential. Eric has played a key role to review the Jeukenne-Lejeune-Mahaux (1977) microscopic potential in the late 90's, in particular by renormalizing the isoscalar and isovector contributions to both its real and imaginary components. The resulting JLMB potential has proven to be of great importance to determine the neutron-capture rate of astrophysical interest in r-process simulations. It also represents today the largest uncertainty potentially affecting the nucleosynthesis predictions. The evolution of the JLMB potential, Eric's contribution to its development and its impact on r-process abundance predictions will be discussed.

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