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Giovanni Gentile jr. and the new quantum mechanics in Rome

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We discuss here the key role of Giovanni Gentile Jr in Rome for the first developments in Italy of the New Quantum Mechanics developed by Born, Jordan, Heisenberg, and Dirac and London [1-5]. We will focus on his works made in the first year after his thesis in Pisa. Giovanni Gentile Jr called Giovannino by his friends, moved to Rome University as assistant professor of prof. Corbino in 1927. In January 1928 he gave a talk on the new results obtained by Rutherford on the nuclear emission of alpha particles pointing out the paradoxes of the proposed model and the need to apply the new quantum mechanics to shed light on these quantum phenomena. This idea was the starting point for the thesis of Ettore Majorana. In the spring 1928 Giovanni Gentile Jr with new student of Fermi, Ettore Majorana, verified that the new Dirac theory proposing the correction of the Schrödinger equation to include relativistic spin-orbit interaction was in agreement with the experimental splitting of the X-ray atomic lines due to spin-orbit interaction which is today a fundamental step in the fields of modern spintronics and of quantum processes of configuration interaction between open and closed scattering channels [6].

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