



## Franco Rasetti



Castiglione del Lago, Italy, 10 August 1901 – Wareme, Belgium, 5 December 2001

**Title** Professor of Physics, Johns Hopkins University, Baltimore, MD, USA

**Field** Entomology, Physics, Paleontology, Botany

**Nomination** 28 Oct. 1936

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### Most important awards, prizes and academies

Honorary Doctor, Laval University, Quebec (Canada); Honorary Doctor of Law, University of Glasgow; Honorary Research Associate in Paleobiology, Smithsonian Institution (Washington); Socio Nazionale dell'Accademia Nazionale dei Lincei (since 1937); Socio dell'Accademia Nazionale delle Scienze, detta dei XL (since 1937); Medaglia Matteucci dell'Accademia Nazionale delle Scienze (1931); Premio Righi dell'Accademia delle Scienze di Bologna (1932); Premio Mussolini della Reale Accademia d'Italia (1938); Medaglia d'Oro dell'Associazione Laureati Ateneo Pisano (1972); Charles D. Walcott Medal and Award, National Academy of Sciences, Washington (1952); Medaglia dell'Accademia Nazionale delle Scienze (1984); Cavaliere di Gran Croce (1995).

### Summary of scientific research

Professional Career: Doctor's Degree in Physics, University of Pisa (1921); Assistant in the Physics Department, University of Florence (1921-25); Assistant in the Physics Department, University of Rome (1926-1930); Tenured Professor of Physics, University of Rome (1931-1939); Professor of Physics and Chairman of Physics Department at Laval University, Quebec, Canada (1939-1945); Full Professor of Physics, Johns Hopkins University, Baltimore, Maryland, USA (1946-1966). Summer Lecturer in Physics at Cornell University, Ithaca, N.Y. (1936); Washington University St. Louis, Missouri (1946); University of Washington, Seattle (1955); Instituto Venezolano de Investigaciones Científicas, Caracas (1957), University of Miami, Florida, (1958; 1961).

### Main publications

A) Physics: Rasetti F., *Il nucleo Atomico*. Zanichelli, Bologna; Rasetti F., *Elements of Nuclear Physics*. Prentice-Hall, New York, 1936; Rasetti F., *Rameneffekt und Struktur der Moleküln und Kristalle*. «Leipziger Vorträge», pp. 59-69, 1931. Summarizes essentials of numerous papers reporting work performed at California Institute of Technology in 1928-29 and in Rome in 1930-31; Rasetti F., *Artificial Radioactivity Produced by Neutron Bombardment* (with E. Fermi, E. Amaldi, O. d'Agostino and E. Segré). «Proc. Royal Soc.», 1934; Rasetti F., *Artificial Radioactivity Produced by Neutron Bombardment II* (with E. Fermi, E. Amaldi, O. d'Agostino, B. Pontecorvo and E. Segré). «Proc. Royal Soc.», 1935; Rasetti F., *Disintegration of slow Mesotrons*. «Phys. Rev.», LX (1941); B) Geology and Paleontology: Rasetti F., *Middle Cambrian Stratigraphy and Faunas of the Canadian Rocky Mountains*. Smithsonian Miscell. Collections CXVI (1951), 227 pp., 34 pls; Rasetti F., *New Trilobite Faunule from the Taconic Sequence of New York*. Smithsonian Miscell. Collections 148/9, 52 pp., 12 pls; Rasetti F., *Lower and Middle Cambrian Trilobite Faunas from the Taconic Sequence of New York*. Smithsonian Miscell. Collections 152/4, 111 pp., 14 pls; Rasetti F., *Cambrian Trilobite Faunas of Sardinia*. «Mem. Accad. Naz. Lincei, Mem. Sci. Fis. Mat. Natur.», Ser. VII, vol. XI, 100 pp., 19 pls. (1972); C) Botany: Rasetti F., *I Fiori delle Alpi*. Accad. Naz. Lincei, 316 pp., 143 colour pls., 1980.

**Commemoration** – Franco Rasetti started his career as a physicist in Pisa and then in Rome since 1927, where he was called by Orso Maria Corbino to be a member of the famous Via Panisperna group led by Enrico Fermi. Although he was for a long time identified as Fermi's collaborator, Rasetti is to be considered one of

the great experimental physicists of the last century. I presume that everybody remembers the experiments of the Panisperna group which led to the discovery of the properties of slow neutrons and paved the way for the exploitation of nuclear energy, but other results by Rasetti have given important contributions to the development of modern physics. In 1928-29, while working at Caltech, he determined the statistical behaviour of nitrogen nuclei. This result definitely proved that the atomic nucleus cannot contain electrons, and opened the way for the discovery of the neutron and for Pauli's neutrino hypothesis and Fermi's theory of beta decay. After emigrating to Canada in 1938, where he accepted an appointment to the Catholic University of Laval, Rasetti refused to take part in the nuclear weapon programme, an example which was not followed by many of his contemporaries. He decided to leave physics and to devote himself to his erstwhile interests in the natural world. He soon became a world authority on trilobites, and on alpine flora. Our sister institution, the Italian Lincei Academy, has recently reissued his magnificent atlas of alpine flowers. Rasetti returned briefly to physics in the seventies, when he engaged in Rome in the measurement of the refractive index of a gas of free electrons. Some of the techniques he developed on this occasion have become widely used in the diagnostics of plasmas. With Franco Rasetti disappears the last of the original members of our Pontifical Academy of Sciences, which were nominated on the occasion of its re-foundation in 1936.

Nicola Cabibbo