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NEWS

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Dirac medal honours charm-quark physicists

John Iliopoulos of the Ecole Normale Supérieure in Paris and Luciano Maiani of the Università degli Studi di Roma have been awarded the 2007 **Dirac medal** (http://www.ictp.trieste.it/~sci_info/awards/Dirac/DiracMedal.html).

Iliopoulos and Maiani each win \$5,000 “for their work on the physics of the ‘charm’ quark, a major contribution to the birth of the Standard Model, the modern theory of elementary particles.” The Dirac medal is presented each year by the Abdus Salam International Centre for Theoretical Physics in Italy on 8 August - the date Paul Dirac was born.



Luciano Maiani

The charm quark was predicted in 1970 by Iliopoulos and Maiani when, with future Nobel laureate Sheldon Glashow, they formulated the now-famous “GIM mechanism” in an attempt to understand the weak interaction. This quark - the fourth predicted to exist - is now known to have a positive charge of two-thirds of that of an electron. “The GIM mechanism was a seminal contribution to the developing theory of the electroweak interaction,” David Gross, a member of the Dirac medal selection committee, told *physicsworld.com*.



John Iliopoulos

Their theory was confirmed in November 1974 with the discovery of the J/Ψ particle - a

bound state of a charm quark and a charm antiquark - at both the Brookhaven National Laboratory and the Stanford Linear Accelerator Centre in the US. The discovery persuaded many physicists for the first time to realize that quarks exist.

Maiani says he is extremely honoured to win the medal. “Dirac has been my hero since the beginning of [my] physics studies,” he said. “I will never forget the impression made upon me by the hole theory of the positron, and reading his book - together with [Richard] Feynman’s - is the way I learned quantum mechanics.”

The Dirac Medal is awarded to scientists previously unrecognized by the Nobel prize, Fields medal or Wolf Foundation prize who “have made significant contributions to physics.”

About the author

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