

We discuss A remarkable example of a quantum phase transition that occurs in the case of a charged massless Dirac particle influenced by an attractive Coulomb potential. The transition occurs when an universal series of quasi-bound states appear once the Coulomb coupling exceeds a certain critical value. We show recent experimental evidence of this transition in graphene. In addition, we show that there is a universal structure linking this transition with the 'Efimov effect', a completely different phenomena describing a 3-body non relativistic quantum system.

- Omrie Ovdad, Jinhai Mao, Eva Y Andrei, and Eric Akkermans. Experimental observation of Efimov-like states in Graphene. Work in progress.