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Dark matter from a complex scalar singlet and the role of the discrete symmetries

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In this talk I will study the case where dark matter emerges from a complex scalar field charged under a U(1) global symmetry, which is spontaneously broken. Our analysis considers different explicit symmetry breaking terms motivated by discrete symmetries. I will show results which demonstrate that in some regions of the parameter space these scenarios may be distinguished by combining different observables, such as direct detection and collider signatures. Finally we discuss the case where the stabilising symmetry may be broken, as well as an effective operator approach valid in the pseudo-Nambu-Goldstone limit.

Primary author: COITO, Leonardo (IFIC/Universidad de Valencia)Presenter: COITO, Leonardo (IFIC/Universidad de Valencia)Session Classification: Poster Session I

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