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**Primordial Black Holes as a common origin for baryons and dark matter.** SEBASTIEN CLESSE, University of Louvain — The origin of the baryon asymmetry of the Universe (BAU) and the nature of dark matter are two of the most challenging problems in cosmology. I will present a scenario in which the gravitational collapse of large inhomogeneities at the quark-hadron epoch generates both the baryon asymmetry and dark matter in the form of primordial black holes(PBHs). The collapse of density fluctuations into PBHs is accompanied by the violent expulsion of surrounding material, which might be regarded as a sort of "primordial supernova". The acceleration of protons to relativistic speeds provides the ingredients for efficient baryogenesis around the collapsing regions and its subsequent propagation to the rest of the Universe. This scenario naturally explains the observed BAU and why the baryons and dark matter have comparable densities. No parameter fine-tuning is required if the PBH originate from the fluctuations of a light stochastic spectator field during inflation. The predicted wide mass distribution of PBH ranges from sub-solar to several hundred solar masses. It evades the current limits on the PBH abundance and could explain a series of observations, including the mass, rate and low effective spins of the black hole mergers detected by LIGO-Virgo.

Sebastien Clesse
Universite catholique de Louvain

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