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Relaxed Dark Matter

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In standard cosmology the present ratio of the dark matter (DM) and baryon energy densities is set by two completely unrelated mechanisms: the DM production mechanism and baryogenesis. Therefore, the fact that the observed value for this ratio is close to one may appear as a puzzling coincidence.
A scalar field interacting differently with DM and baryons
can explain dynamically why the ratio of their cosmic densities is of
order unity today: In the model presented in this talk, the initial DM and baryon densities "relax" to a ratio of coupling constants, which can be naturally of the order of one. Implications of this scenario for cosmology (e.g. structure formation and gravity tests) and particle physics (e.g. impact on SUSY parameter space) will be also discussed.

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