Weak signals of quantum spacetime from electromagnetic interactions of neutral dark matter

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On DFR quantum spacetime a U(1) gauge theory turns into a gauge theory based on the noncommutative group of unitaries of the DFR C*-algebra, and this implies that classical electrodynamics becomes an interacting theory and that also neutral particles can have non-trivial interaction with the electromagnetic field. This effect can serve therefore as an observable signature of quantum spacetime with relatively low background. We analyze this interaction and give some order of magnitude estimates for the radiation emitted by possible compact astrophysical objects of neutral dark matter. (Joint work with S. Doplicher, K. Fredenhagen, N. Pinamonti.)