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## 't Hooft quantization scheme and Gupta-Bleuler condition

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In the attempt to find a deterministic description of quantum systems, 't Hooft proposed the idea that deterministic degrees of freedom could operate at very high energy scales (e.g. Planck scale) and ordinary quantum mechanics would appear as a result of an information loss process. This implies the existence of "beables", i.e. ontological (commuting) operators which, after information loss, would give rise to the usual quantum (non-commuting) observables.

I will review some recent developments along this line of research and in particular the possibility of regarding the Gupta-Bleuler condition arising in the quantization of electromagnetic field in Lorenz gauge, as the condition for obtaining a genuine quantum system (QED) out of a deterministic one.

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