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Philippe G. LeFloch*, Laboratoire Jacques-Louis Lions, Centre National de la Recherche Scientifique, PARIS, France. *Nonlinear stability of self-gravitating massive fields.*

I will discuss the global evolution problem for self-gravitating massive matter in the context of Einstein's theory and, more generally, for the $f(R)$ -modified theory of gravity. In collaboration with Yue Ma (Xi'an Jiaotong), by analyzing the Einstein equations in wave gauge coupled to Klein-Gordon equations, I have established that Minkowski spacetime is globally nonlinearly stable in presence of massive fields. This extends a fundamental work by Christodoulou and Klainerman in 1993, later revised by Lindblad and Rodnianski, who were concerned with the stability of vacuum spacetimes and massless fields. Blog address: <http://philippefloch.org> (Received February 17, 2018)