

# On Canonical Formalisms in General Relativity

*Friday, 25 September 2020 11:45 (30 minutes)*

The canonical formalism by Arnowitt, Deser and Misner has proven very efficient in the derivation of higher order post-Newtonian (PN) dynamics of compact binaries in general relativity (GR), also including bodies with spin. There is ongoing strong impact on the gravitational wave research, in particular through its offspring, the effective-one-body (EOB) approach. The complete 3PN spinless binary dynamics has been obtained in 2001 and the 4PN one in 2014, each for the first time. However, there are two other canonical formalisms in GR, the somewhat related one by Dirac with its famous maximal slicing condition and the less known one by Schwinger with which by Kibble, and this for the first time, the Dirac spin-1/2-field equations had become canonically implemented into GR in fully gauge symmetry-reduced form. In my talk the three canonical formalisms will be presented and compared to each other.

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