



Contribution ID: 102

Type: **talk**

On the geometric origin of the energy-momentum tensor improvement terms

Monday 1 September 2025 17:35 (35 minutes)

I will show how the Belinfante-Rosenfeld improvement terms, that render the energy-momentum tensor symmetric, emerge by coupling the matter to the affine-connection. In this sense the improvement terms correspond to the hypermomentum (microproperties) of matter. I will show how this is realized in two standard examples, the Maxwell field and the Dirac field. I will also show how the connection-matter couplings can also result in a traceless energy tensor when the theory is invariant under frame rescalings, by revisiting the known example of a conformally invariant scalar field. Generalizations to higher derivative as well as higher spin theories will also be discussed.

Primary author: Dr IOSIFIDIS, Damianos (Scuola Superiore Meridionale, Napoli)

Presenter: Dr IOSIFIDIS, Damianos (Scuola Superiore Meridionale, Napoli)

Session Classification: Afternoon