

**Exegesis of the Introduction and Sect.  
I from “Fundamentals of the Mechanics of Continua” by E. Hellinger**

*Dr. Simon R. Eugster*

*Institute for Nonlinear Mechanics, University of Stuttgart, Germany*

So far, the fundamental review article DIE ALLGEMEINEN ANSÄTZE DER MECHANIK DER KONTINUA in the Encyklopädie der mathematischen Wissenschaften mit Einschluss ihrer Anwendungen by Ernst Hellinger from 1913 has not been translated completely into English.

The presentation of continuum mechanics by Hellinger is entirely based on the principle of virtual work, which is regarded as the central principle in continuum mechanics. This variational ansatz to continuum mechanics allowed Hellinger to formulate three-dimensional continua, two- and one-dimensional continua, generalized continua as well as higher gradient continua with the very same principle in a concise way.

In this talk, we discuss some insights reached by Hellinger in the mathematical structure of continuum mechanics which seems, in some aspects, unsurpassed even nowadays.