USING EMMO TO REPRESENT PROPERTIES ONTOLOGICALLY

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When communicating measured or modelled properties within applied sciences, it is essential to also describe the conditions and boundaries under which the measurement or modelling effort was performed. The *Elemental Multiperspective Material Ontology* (EMMO), formerly known as the European Material & Modelling Ontology, starts out with exactly this in mind when formalising its description and categorisation of properties. Inspired by Pierce's semiotics, EMMO [1] describes the assignment of a property as a triadic semantic process involving the object (that possesses the property, e.g. a material sample in a measurement), a sign that stands for the property and the interpretant, which is the internal representation of the property produced by an interpreter (e.g. a measurement system).
In this presentation we will try to show how this ontological framework can be used in practice to semantically describe how physical properties are obtained and documented (e.g. whether and how they are declared, measured or modelled) and connected with a material object. We will also show how such an ontological system can be used to enable semantic interoperability in a both efficient and flexible way [2].

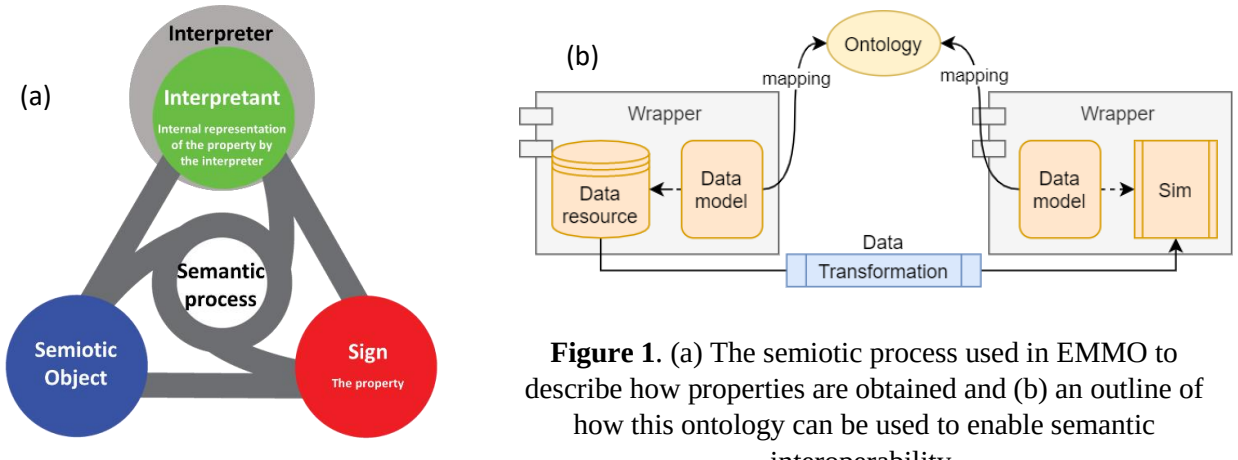

Figure 1. (a) The semiotic process used in EMMO to describe how properties are obtained and (b) an outline of how this ontology can be used to enable semantic interoperability.

Keywords
Physical properties, Ontology, Interoperability.

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References
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