



# SEM 2023

**Scalar Electromagnetism in the era  
of Global Energy Challenges**

 **Prague, Czech Republic**

 **June 7th - 10th 2023**

**You are cordially invited to join the first SEM conference.**

Although the physics of the 21st century can boast of many impressive results, such as the discovery of the Higgs boson, the observation of gravitational waves, the image of a black hole, etc., the prevailing opinion is that nothing fundamentally new can be discovered in a field that affects our daily life. In contrast, the atmosphere in the physics of the 19th and first half of the 20th century was much more revolutionary. All the cornerstones of today's physics, such as the theory of electromagnetism, relativity and quantum physics, come from this time. The question is, why is there a growing feeling that the relevance of today's physics to our lives is vanishing? Is this because everything has already been discovered, as many believed in the late 19th century? Is this because today's physics is very expensive and only large collaborations that do not allow individual contribution as much are relevant? Or is it because some basic pillars of nowadays physics are ripe for revision and generalization?

This last question is the main motivation for this conference. It is well known that the standard model of fundamental particles and interactions is incomplete. Less known is that the Maxwell-Heaviside (MH) theory of electromagnetism, the mother of all, has a large number of deficiencies (lack of first-order invariance, overdetermination, the  $4/3$  electron mass problem, to name a few), and there are conflicting observations (Marinov engine, Brown lifter, Aharonov-Bohm, Maxwell-Lodge, Sagnac effect, superluminal waves propagation and many others). From the beginning, there have been alternative views on the MH field description. For example, pure relational electrodynamics developed by Wilhelm E. Weber obeys, in contrast to MH theory, conservation of particle momentum and angular momentum. There are good reasons to believe that reformulating some outdated and contradictory constructions could bring fresh wind to the development of new technologies with potential in the fields of energy sources, communication, transportation and many others. This conference's main goal is bringing together experts in the field of "beyond-classical", electromagnetism, relativity and quantum physics. Those who can contribute to the development and understanding of phenomena related to magneto-scalar fields, quantum tunneling, zero-point energy and related topics.



**Jan Rak,**  
main speaker,  
and SEM protagonist

**Register for updates.**

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