

Evil Quaternions and Electrothermomagnetism

The talk will take place in RIII seminar room on 23rd of november at 19:15.

Notes for this talk are now AVAILABLE (CLICK).

The structure of the talk will be as follows:

1. An overview of Maxwell's equations with Heaviside-Gibbs vectors
2. An overview of thermoelectric effects
3. The evil quaternion division algebra
4. Reformulating Maxwell's equations with quaternions
5. A missing piece recovered: the Temporal Field, and its connection to heat
6. Emerging thermoelectric effects: A unified theory of electro*thermo*magnetism
7. Heat capacity, and Seebeck effect and Magnetization

After the introduction to quaternions, the talk is based on a paper by Peter Michael Jack: <https://arxiv.org/pdf/math-ph/0307038.pdf>

The topic is very interesting, and even though this work is not conventional/wildly adopted, there's a lot to learn from it.