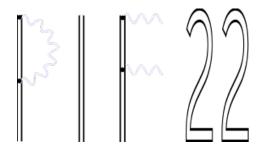Contribution ID: **23**   Type: **not specified**

Radiation Reaction: Reduction of Order, Runaways, Resummation, Resurgence

Tuesday 30 August 2022 15:00 (25 minutes)

There is a renewed interest in the physics of radiation reaction (RR), largely driven by high-power laser systems where particles are subject to RR forces at least as strong as the Lorentz force. The Lorentz-Abraham Dirac (LAD) equation of motion with RR has, however, unphysical runaway solutions. The Landau-Lifshitz (LL) equation obtained from the Lorentz-Abraham-Dirac equation through 'reduction of order' is free of these.

We show how LL is the first in a divergent series of approximations that, after resummation, eliminate runaway solutions at all orders. Using Borel plane and transseries analysis we explain why this is, and show that a non-perturbative formulation of reduction of order can retain runaway solutions.

Primary author: Dr EKMAN, Robin (Umeå University)

Presenter: Dr EKMAN, Robin (Umeå University)

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