



Contribution ID: 19

Type: **not specified**

## Celestial micro-mechanics 1916-17: Einstein vs. Schwarzschild, Sommerfeld, Epstein

*Wednesday, 6 September 2023 10:25 (20 minutes)*

I compare two research programmes from the late years (1916-) of the old quantum theory. In three texts from 1917, Einstein proposes an apparently Hamiltonian micro-mechanics –on a torus designed to ‘Riemannize away’ problematic dynamical multi-valuedness –characterised by surprisingly modern invariances: ‘point’ (diffeomorphic) and homotopic. The rival programme (Schwarzschild, Sommerfeld, Epstein etc.), which is genuinely canonical, produces its own tori through action-angle variables and uses perturbations (Zeeman, Stark, relativity) to eliminate awkward coordinate ambiguities which would affect quantisation itself.

**Primary author:** AFRIAT, Alexander (Université de Bretagne Occidentale)

**Presenter:** AFRIAT, Alexander (Université de Bretagne Occidentale)

**Session Classification:** Da Poleni a B. Rossi e oltre / From Poleni to B. Rossi, and Beyond: 20th Century

**Track Classification:** SISFA 2023