

PHYSICAL AND MATHEMATICAL INSUFFICIENCIES OF LAGRANGE'S AND HAMILTON'S EQUATIONS

$$\left[\frac{d}{dt} \frac{\partial \mathbf{L}(\mathbf{t}, \mathbf{r}, \mathbf{v})}{\partial \mathbf{v}_k} - \frac{\partial \mathbf{L}(\mathbf{t}, \mathbf{r}, \mathbf{v})}{\partial \mathbf{r}_k} \right]^{\text{SA}} = \mathbf{F}_k(\mathbf{t}, \mathbf{r}, \mathbf{v})^{\text{NSA}}$$

$$\frac{d\mathbf{r}_k}{dt} = \frac{\partial \mathbf{H}(\mathbf{t}, \mathbf{r}, \mathbf{p})}{\partial \mathbf{p}_k}, \quad \frac{d\mathbf{p}_k}{dt} = -\frac{\partial \mathbf{H}(\mathbf{t}, \mathbf{r}, \mathbf{p})}{\partial \mathbf{r}_k} + \mathbf{F}_k(\mathbf{t}, \mathbf{r}, \mathbf{p})$$

Loss of all algebras in the brackets of the time evolution

$$\frac{d\mathbf{A}}{dt} = \frac{\partial \mathbf{A}}{\partial \mathbf{r}} \frac{\partial \mathbf{H}}{\partial \mathbf{p}} - \frac{\partial \mathbf{H}}{\partial \mathbf{r}} \frac{\partial \mathbf{A}}{\partial \mathbf{p}} + \frac{\partial \mathbf{A}}{\partial \mathbf{p}} \times \mathbf{F}^{\text{NSA}} = (\mathbf{A}, \mathbf{H}) \mathbf{F}^{\text{NSA}}$$

: Physical insufficiencies:

Sole representation of point-particles in vacuum

Mathematical insufficiency:

The background mathematics is local-differential
thus solely capable of abstracting physical particles
to massive points in vacuum