The variables form the synchronised similar triangles

$$\xi_i = \frac{q_i}{\sqrt{I}}, \ \eta_i = \frac{d\xi_i}{dt} = \frac{v_i}{\sqrt{I}} - \frac{1}{2I}\frac{dI}{dt}\frac{q_i}{\sqrt{I}}.$$

Then, we get

$$\frac{q_i \wedge q_j}{I} + \frac{v_i \wedge v_j}{K} = \frac{1}{2IK}\frac{dI}{dt}\frac{d}{dt}(q_i \wedge q_j),$$

$$I\frac{d}{dt}\left(\frac{1}{I}\frac{d\Delta}{dt}\right) = -\left(\frac{2K}{I} + \sum_{i<j}(m_i + m_j) r_{ij}^{\alpha-2}\right)\Delta.$$

We gave a short proof that $\Delta(t)$ has infinitely many zeros if $\alpha \leq 2$.