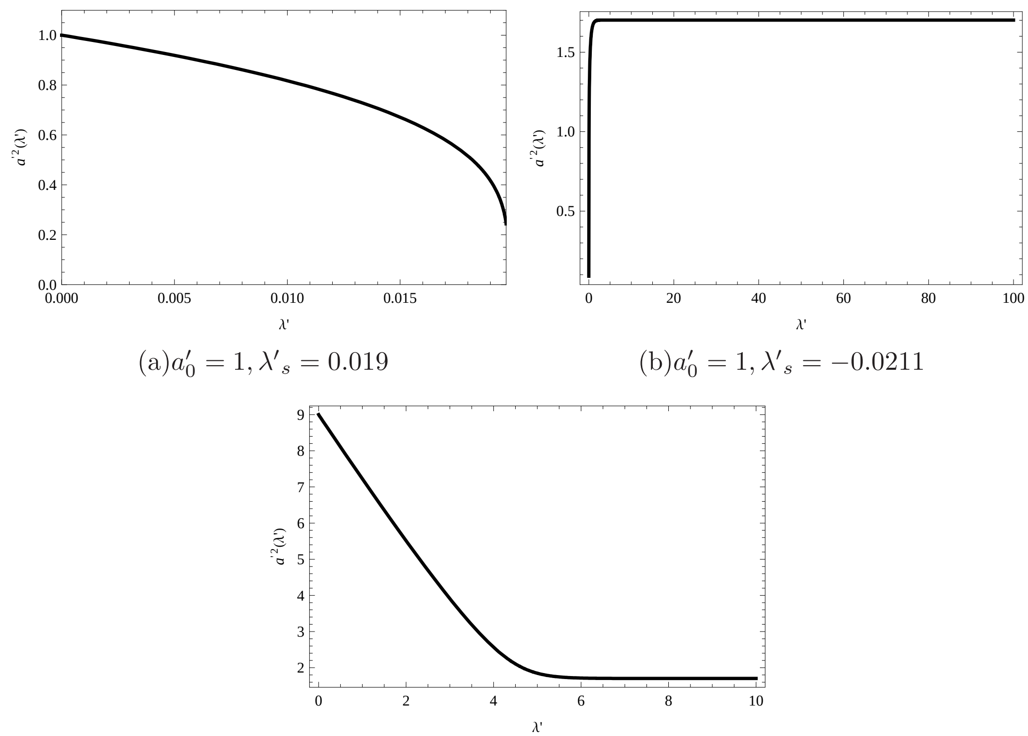
$$c_1 \approx 0.7544 \quad c_2 \approx -0.2456 \quad c_3 \approx 1..3618 \tag{17a}$$

$$\eta \approx 1.7024 \quad \beta \approx 0.7024 \quad \delta \approx 2.4457 \tag{17b}$$

Fig.3(a) shows the ancient solution, while Fig.3(b) illustrates the ancient solution for $a'_0 <$



(a)$a'_0 = 1, \lambda'_s = 0.019$ (b)$a'_0 = 1, \lambda'_s = -0.0211$

(c)$a'_0 = 3$

FIG. 3: $a'^2(\lambda')$ vs λ' for $4th$ order flow

$1.3048(a'_\infty = constant)$. Fig.3(c) with $a'_0 > 1.3048(a'_\infty = constant)$ demonstrates the eternal solution.

4. 2nd order flow on H^2

Proposition III.4 *2nd order flow on hyperbolic space with $\alpha' > 0$ generates two kinds of final metrics depending on the initial scale factors. For $b'(\lambda')^2 > 1$ it is expanding and for $b'(\lambda')^2 < 1$ it is converging. In both cases the scale factor asymptotically tends to 1 in backward time($b'_{-\infty} = 1$). For $\alpha' < 0$, we obtain an immortal solution.*