449. 円系表面ニツイテ

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$f(t,\tau)=\alpha$ ナル曲線群ニ垂直ナル曲線群ハ円系表面デ

$$(1)\quad \left\{(\theta_t\theta_t)\frac{\partial f}{\partial \tau}-(\theta_t\theta_\tau)\frac{\partial f}{\partial t}\right\}dt+\left\{(\theta_t\theta_\tau)\frac{\partial f}{\partial \tau}-(\theta_\tau\theta_\tau)\frac{\partial f}{\partial t}\right\}d\tau=0$$

トナル、コゝニ α ハ parameter デアル。

サテ (1) ヨリ

$$(2)\quad p\equiv\frac{dt}{d\tau}=\frac{-(\theta_t\theta_\tau)\frac{\partial f}{\partial \tau}+(\theta_\tau\theta_\tau)\frac{\partial f}{\partial t}}{(\theta_t\theta_t)\frac{\partial f}{\partial \tau}-(\theta_t\theta_\tau)\frac{\partial f}{\partial t}}$$

トオケバ

$$(3)\quad F\left(t,\tau,\frac{p-m}{1+mp}\right)=0$$

ハ

$$(4)\quad F(t,\tau,p)=0$$

ノ oblique trajectories デアル。

尚ホ前ニモノベシ様ニ

(5) $Ⓗ dt^2 + 2\text{亜}\, dt\, d\tau + \text{工} d\tau^2 = 0$

ナル二方向ヲ円系表面上ニ考ヘルトキハソノ間ノ角 ω ハ

(6) $$\frac{\sin\omega}{2\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}\{\text{亜}^2-Ⓗ\text{亜}\}^{\frac{1}{2}}}$$

$$=\frac{\cos\omega}{(\theta_t\theta_t)\text{亜}-2(\theta_t\theta_\tau)\text{亜}+(\theta_\tau\theta_\tau)Ⓗ}$$

デ與ヘラルル故ニ

(7) $\text{亜}^2 = Ⓗ\text{亜}$

ナラバ $\omega = 0$ ナルコト亦 $\omega = \frac{\pi}{4}$ ナラベ

(8) $(\theta_t\theta_t)\text{亜}-2(\theta_t\theta_\tau)\text{亜}+(\theta_\tau\theta_\tau)Ⓗ$

$$=2\{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2\}^{\frac{1}{2}}(\text{亜}^2-Ⓗ\text{亜})^{\frac{1}{2}}$$

ナルコトガ分ル。