

## 宇田雄一「古典物理学」

$$【3c6c】 t>0 \Rightarrow \theta(t) = \cos^{-1} \left[ \frac{h^2/r(t) + qm(2,1)/m(1,1)}{\sqrt{[qm(2,1)/m(1,1)]^2 + Kh^2}} \right]$$

### ケプラー運動

$$\forall f \in F_{2,1}; \forall E \in F_3; \forall Z \in F_{4,1}; \forall q \in \mathbb{R}; \forall M \in \mathbb{R}(1); \\ \forall m \in \mathbb{R}(2 \times 1); [【1】\text{ and }【2】] \Rightarrow 【3】$$

- 【1】  $m(1,1)M(1) = -qm(2,1)$  and  $m(1,1) > 0$  and  $M(1) > 0$  and  $Z = 0$
- 【2】  $\forall \xi \in N_{01}; \forall i \in 3; E(\xi, i, 1) = q \gamma(i; \xi(3), 0)$  and  $E(\xi, i, 2) = 0$
- 【3】  $e_2(f, E, m) \Leftrightarrow e_1(f(\square, \square, 1), Z, M, m(\square, 1))$

### 二体問題

$$\forall f \in F_{2,2}; \forall Z \in F_{4,1}; \forall m \in \mathbb{R}(2 \times 2); \forall m' \in \mathbb{R}(1); \\ 【1】 \Rightarrow [[\exists f_1, f_2 \in F_1; 【2】 \text{ and } 【3】] \Leftrightarrow e_2(f, 0, m)]$$

- 【1】  $m(1,1) > 0$  and  $m(1,2) > 0$  and  $m'(1) = m(1,1) + m(1,2)$  and  $Z = 0$
- 【2】  $f(\square, \square, 1) = \frac{1}{m'(1)}f_1 + \frac{m(1,2)}{m'(1)}f_2$  and  $f(\square, \square, 2) = \frac{1}{m'(1)}f_1 - \frac{m(1,1)}{m'(1)}f_2$
- 【3】  $e_1(f_1, Z, 0, M)$  and  $e_1(f_2, Z, m', M)$

### 平面電磁波

$$\forall f \in F_3; \forall a \in \mathbb{R}(\mathbb{R}); \\ [\forall \xi \in N_{01}; f(\xi, 1, 1) = f(\xi, 3, 1) = f(\xi, 1, 2) = f(\xi, 2, 2) = 0 \\ \text{and } f(\xi, 2, 1) = f(\xi, 3, 2) = a(\xi(1) - \xi(4))] \Rightarrow e_3(f, Y, 0)$$