「ゼロから学ぶ解析力学」正誤表

第 1 刷

	誤	正
29p　式(34)	$z=\frac{x}{v_0\cos\theta}\sin\theta-....$	$z=\frac{x}{v_0\cos\theta}v_0\sin\theta-....$
33p　式(42)	$\frac{\mathrm{d}}{\mathrm{d}t}(mv_z)+mgz=0$	$\frac{\mathrm{d}}{\mathrm{d}t}(mv_z)+mg=0$
66p　7 行目 191p　下 5 行目	方物運動	放物運動
87p　上の図		C と C' が逆
100p　10 行目	$T(\boldsymbol{v})=\boldsymbol{v}^2/2m$	$T(\boldsymbol{v})=m\boldsymbol{v}^2/2$
123p　式(239) 124p　式(240)	$L(\boldsymbol{r},\boldsymbol{v},\lambda)$	$L(\boldsymbol{r},\boldsymbol{v})$
152p　下 8 行目	$\boldsymbol{v}=(\boldsymbol{p}-Q\boldsymbol{A})$	$\boldsymbol{v}=(\boldsymbol{p}-Q\boldsymbol{A})/m$
152p　式(318)	$=\frac{1}{2m}(\boldsymbol{p}-Q\boldsymbol{A}(\boldsymbol{r}))+Q\phi(\boldsymbol{r})$	$=\frac{1}{2m}(\boldsymbol{p}-Q\boldsymbol{A}(\boldsymbol{r}))^2+Q\phi(\boldsymbol{r})$
156p　式(328)	$R(\boldsymbol{p},\boldsymbol{w})=\boldsymbol{r}\cdot\boldsymbol{w}-H(\boldsymbol{r},\boldsymbol{p})$	$R(\boldsymbol{p},\boldsymbol{w})=\boldsymbol{r}\cdot\boldsymbol{w}+H(\boldsymbol{r},\boldsymbol{p})$
167p　式(351)	$\frac{\mathrm{d}v_x}{\mathrm{d}t}-\frac{\partial H(\boldsymbol{r},\boldsymbol{p})}{\partial p_x}=0$	$\frac{\mathrm{d}x}{\mathrm{d}t}-\frac{\partial H(\boldsymbol{r},\boldsymbol{p})}{\partial p_x}=0$
171p　式(360)	$\mathrm{d}H(x,p)=\frac{\partial H(x,p)}{\partial x}\mathrm{d}x+\frac{\partial H(x,p)}{\partial v}\mathrm{d}p$	$\mathrm{d}H(x,p)=\frac{\partial H(x,p)}{\partial x}\mathrm{d}x+\frac{\partial H(x,p)}{\partial p}\mathrm{d}p$
180p　4 行目	$H=p^2/2m+m\omega^2x^2$	$H=p^2/2m+m\omega^2x^2/2$

182p　1 行目	$$\sum_{j,k}\frac{\partial A}{\partial q_j}\left(\frac{\partial H}{\partial Q_k}\frac{\partial Q_k}{\partial p_j}-\frac{\partial H}{\partial P_k}\frac{\partial P_k}{\partial p_j}\right)-\sum_{j,k}\frac{\partial A}{\partial p_j}\left(\frac{\partial H}{\partial Q_k}\frac{\partial Q_k}{\partial q_j}-\frac{\partial H}{\partial P_k}\frac{\partial P_k}{\partial q_j}\right)$$ このままでは意味不明だけれども，少し並べ替えると $$\sum_{j,k}\frac{\partial H}{\partial Q_k}\left(\frac{\partial A}{\partial q_j}\frac{\partial Q_k}{\partial p_j}-\frac{\partial Q_k}{\partial q_j}\frac{\partial A}{\partial p_j}\right)-\sum_{j,k}\frac{\partial H}{\partial P_k}\left(\frac{\partial A}{\partial q_j}\frac{\partial P_k}{\partial p_j}-\frac{\partial P_k}{\partial p_j}\frac{\partial A}{\partial q_j}\right)$$	$$\sum_{j,k}\frac{\partial A}{\partial q_j}\left(\frac{\partial H}{\partial Q_k}\frac{\partial Q_k}{\partial p_j}+\frac{\partial H}{\partial P_k}\frac{\partial P_k}{\partial p_j}\right)-\sum_{j,k}\frac{\partial A}{\partial p_j}\left(\frac{\partial H}{\partial Q_k}\frac{\partial Q_k}{\partial q_j}+\frac{\partial H}{\partial P_k}\frac{\partial P_k}{\partial q_j}\right)$$ このままでは意味不明だけれども，少し並べ替えると $$\sum_{j,k}\frac{\partial H}{\partial Q_k}\left(\frac{\partial A}{\partial q_j}\frac{\partial Q_k}{\partial p_j}-\frac{\partial Q_k}{\partial q_j}\frac{\partial A}{\partial p_j}\right)-\sum_{j,k}\frac{\partial H}{\partial P_k}\left(\frac{\partial A}{\partial q_j}\frac{\partial P_k}{\partial p_j}-\frac{\partial P_k}{\partial q_j}\frac{\partial A}{\partial p_j}\right)$$
182p　式(392)	$[Q_i,Q_k]=0,[Q_i,P_k]=\delta_{ik}=-[P_k,Q_i]=0,[Q_i,Q_k]=0$	$[Q_i,Q_k]=0,[Q_i,P_k]=\delta_{ik}=-[P_k,Q_i]=0,[P_i,P_k]=0$
194p　式(419)	$$\sim\frac{1}{2m}\left(\frac{\partial S(\boldsymbol{r}_\mathrm{B},t_\mathrm{B})}{\partial x_\mathrm{B}}\right)^2 e^{\frac{i}{\hbar}S(\boldsymbol{r}_\mathrm{B},t_\mathrm{B})}$$	$$\sim\frac{1}{2m}\left(\frac{\partial S(\boldsymbol{r}_\mathrm{B},t_\mathrm{B})}{\partial x_\mathrm{B}}\right)^2 Ae^{\frac{i}{\hbar}S(\boldsymbol{r}_\mathrm{B},t_\mathrm{B})}$$
199p　式(429)中	$\delta\boldsymbol{r}_{i+1}-\delta\boldsymbol{r}_i$（2 か所）	$\delta\boldsymbol{u}_{i+1}-\delta\boldsymbol{u}_i$