Elementi di Fisica Teorica - Correzione errori tipografici

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$$\overrightarrow{R} = \frac{m_1 \overrightarrow{r}_1 + m_2 \overrightarrow{r_2}}{m_1 + m_2}.$$

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$$-\delta V = \sum_{i,\alpha} F^{appl}_{i,\alpha} \delta x_{i,\alpha}.$$

$$\delta x_{i,\alpha} = \sum_{\beta} \frac{\partial x_{i,\alpha}}{\partial q_\beta} \delta q_\beta.$$

$$-\frac{\partial V}{\partial q_\beta} = \sum_{i,\alpha} F^{appl}_{i,\alpha} \frac{\partial x_{i,\alpha}}{\partial q_\beta}.$$

$$\delta V = \sum_{\beta} \frac{\partial V}{\partial q_\beta} \delta q_\beta.$$

$$Q_\beta = \sum_{i,\alpha} F^{appl}_{i,\alpha} \frac{\partial x_{i,\alpha}}{\partial q_\beta}.$$

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$$\ddot{x}_{i,\alpha} \frac{\partial x_{i\alpha}}{\partial q_\beta} = \frac{d}{dt}(\dot{x}_{i,\alpha} \frac{\partial x_{i\alpha}}{\partial q_\beta}) - \dot{x}_{i,\alpha} \frac{\partial \dot{x}_{i,\alpha}}{\partial q_\beta}.$$

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$$S = \tfrac{m}{2} \int_{t_1}^{t_2} dt \tfrac{(x_b - x_a)^2}{(t_2 - t1)^2} = \tfrac{m}{2} \tfrac{(x_b - x_a)^2}{t_2 - t_1}$$

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$$S(\alpha_i) = \int_{t_1}^{t_2} dt L(q_i(t) + \alpha_i \eta_i(t), \dot{q}_i(t) + \alpha_i \dot{\eta}_i(t), t) dt,$$

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$$\int_{t_1}^{t_2} dt \frac{\partial L}{\partial \dot{q}_i} \dot{\eta}_i(t) = [\frac{\partial L}{\partial \dot{q}_i} \eta_i(t)]_{t_1}^{t_2} - \int_{t_1}^{t_2} dt \eta_i(t) \frac{d}{dt} \frac{\partial L}{\partial \dot{q}_i},$$

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$$g(u, y) = f(x(u), y).$$

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$$\delta S = \delta \int_{t_1}^{t_2} dt [\sum_i p_i \dot{q}_i - H] = \delta \int_{t_1}^{t_2} dt [\sum_i P_i \dot{Q}_i - \tilde{H}].$$

$$\sum_i p_i \dot{q}_i - H = \sum_i P_i \dot{Q}_i - \tilde{H} + \frac{dF}{dt}.$$

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$$\sum_i p_i \dot{q}_i - H = \sum_i P_i \dot{Q}_i - \tilde{H} + \frac{\partial F}{\partial t} + \sum_i [\frac{\partial F}{\partial q_i} \dot{q}_i + \frac{\partial F}{\partial Q_i} \dot{Q}_i].$$

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$$E = \sum_i p_i \dot{q}_i - L = \sum_i [(m\dot{x}_i + qA_i)\dot{x}_i - (\frac{1}{2} m \dot{x}_i^2 + q\dot{x}_i \cdot A_i)] + q\phi = \frac{1}{2} m \dot{r}^2 + q\phi$$

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P.A.M. Dirac:(Bristol 1902-Tallahasee (Florida, USA) 1984)

• **pagina 46** in un ciclo $\Delta Q = \oint \delta Q$ puo' essere non nullo.

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$$\oint dS = 0.$$

• **pagina 64**

$$W_{tot}(E) = \text{costante } \times E^{\frac{3N}{2}} \Rightarrow W(E) = \frac{\partial W_{tot}}{\partial E} = \frac{3N}{2E} W_{tot}.$$

• **pagina 67**

$$\int \delta(H_{\mathcal{B}} - E) \frac{d\Gamma_{\mathcal{B}}}{h^{s(\mathcal{B})}} = e^{\frac{S_{\mathcal{B}}(E_{\mathcal{C}} - H_{\mathcal{S}})}{K_{\mathcal{B}}}}.$$

$\rho = \rho_1 \rho_2$ ed anche i sistemi parziali hanno la distribuzione canonica.

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$$\int_{-\infty}^{\infty} dx e^{-\alpha x^2} = \sqrt{\frac{\pi}{\alpha}},$$

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$$\frac{S}{K_B} = N \log N - N \sum_r \rho(\epsilon_r) \log(N\rho(\epsilon_r)) = -N \sum_r \rho(\epsilon_r) \log(\rho(\epsilon_r)).$$

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$$u(\omega) d\omega = \frac{K_B T \omega^2}{\pi^2 c^3} d\omega.$$

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$$\frac{\partial^2}{\partial r^2} f(t - \frac{r}{c}) = \frac{1}{c^2} \frac{\partial^2}{\partial t^2} f(t - \frac{r}{c}).$$

$$\int_S \nabla^2 \left(\frac{\delta(t - \frac{r}{c})}{r} \right) d^3 r = \int_{\delta S} \text{grad} \left(\frac{\delta(t - \frac{r}{c})}{r} \right) \cdot \frac{\overrightarrow{r}}{r} dS$$

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$$\text{grad } \delta(t - \frac{r}{c}) = -\frac{1}{c} \text{grad } r \; \delta'(t - \frac{r}{c}) = -\frac{\overrightarrow{r}}{rc} \delta'(t - \frac{r}{c}),$$

D'altra parte, sempre usando $\frac{\partial^2}{\partial r^2} \delta(t - \frac{r}{c}) = \frac{1}{c^2} \frac{\partial^2}{\partial t^2} \delta(t - \frac{r}{c})$,

$$\int_S d^3 r \frac{1}{c^2} \frac{\partial^2}{\partial t^2} \left(\frac{\delta(t - \frac{r}{c})}{r} \right) = \int_S d^3 r \frac{1}{r} \frac{\partial^2}{\partial r^2} \delta(t - \frac{r}{c})$$

$$= 4\pi \int_0^{R_0} dr r^2 \frac{1}{r} \frac{\partial^2}{\partial r^2} \delta(t - \frac{r}{c}).$$

Pertanto,

$$\int_S d^3 r \frac{1}{c^2} \frac{\partial^2}{\partial t^2} \left(\frac{\delta(t - \frac{r}{c})}{r} \right) = 4\pi \{ -\delta(t - \frac{R_0}{c}) + \frac{R_0}{c} \delta'(t - \frac{R_0}{c}) + \delta(t) \}$$

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