# Erratum to "Currents and the Energy-Momentum Tensor in Classical Field Theory: A Fresh Look at an Old Problem" [ Ann. Phys. 309 (2004) 306 ]

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Equation (52) on p. 318 should read

$$T^{\mu\kappa\lambda} = \Theta^{\mu\kappa\lambda} + \frac{1}{2}\,\partial_\nu\Big(x^\kappa\Big(\Sigma^{\nu\mu\lambda} + \Sigma^{\mu\lambda\nu} - \Sigma^{\lambda\nu\mu}\Big) - x^\lambda\Big(\Sigma^{\nu\mu\kappa} + \Sigma^{\mu\kappa\nu} - \Sigma^{\kappa\nu\mu}\Big)\Big) + \frac{1}{n-1}\Big(\Big(x^\kappa\eta^{\mu\lambda} - x^\lambda\eta^{\mu\kappa}\Big)\,\Box f - \Big(x^\kappa\partial^\lambda - x^\lambda\partial^\kappa\Big)\,\partial^\mu f\Big)\,. \qquad (52)$$

The fifth equation on p. 352 should read

$$2\,\nabla_\mu\nabla_\nu\,\alpha^{\mu\nu} \;=\; [\nabla_\mu,\nabla_\nu]\,\alpha^{\mu\nu} \;=\; R^\mu{}_{\kappa\mu\nu}\,\alpha^{\kappa\nu} + R^\nu{}_{\kappa\mu\nu}\,\alpha^{\mu\kappa} \;=\; 0\,.$$

On p. 362, line 5 from bottom, the word "current" should be replaced by the words "energy-momentum tensor".

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The last four lines of the first equation on p. 364 should read

$$
\begin{aligned}
= \int_K \mathrm{d}^n x \, \sqrt{|\det g|} \Bigg( & \frac{1}{2}\, g^{\mu\nu} L_{\mathrm{m}}\, \delta g_{\mu\nu} \,+\, \frac{\partial L_{\mathrm{m}}}{\partial g_{\mu\nu}}\, \delta g_{\mu\nu} \\
& - \frac{1}{2} \Bigg[ g^{\kappa\mu}\, \nabla_\lambda \Bigg( \frac{\partial L_{\mathrm{m}}}{\partial \Gamma^{\kappa}_{\lambda\nu}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\lambda\nu\rho}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\nu\lambda\rho}} \Bigg) \\
& \quad + g^{\kappa\nu}\, \nabla_\lambda \Bigg( \frac{\partial L_{\mathrm{m}}}{\partial \Gamma^{\kappa}_{\mu\lambda}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\mu\lambda\rho}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\lambda\mu\rho}} \Bigg) \\
& \quad - g^{\kappa\lambda}\, \nabla_\lambda \Bigg( \frac{\partial L_{\mathrm{m}}}{\partial \Gamma^{\kappa}_{\mu\nu}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\mu\nu\rho}} + \nabla_\rho \frac{\partial L_{\mathrm{m}}}{\partial R^{\kappa}{}_{\nu\mu\rho}} \Bigg) \Bigg] \delta g_{\mu\nu} \Bigg).
\end{aligned}
$$

Equation (259) on p. 370 should read

$$
\Lambda^a_b \;=\; \frac{1}{2} \left( e^\mu_b \; \delta e^a_\mu \;-\; \eta^{ac}\, \eta_{bd}\, e^\mu_c \; \delta e^d_\mu \right). \tag{259}
$$

Equation (261) on p. 370 should read

$$
\delta^- e^a_\mu \;=\; \Lambda^a_b \, e^b_\mu \,. \tag{261}
$$

On p. 371, line 6, the expression "$e^*(LM)$" should be replaced by the expression "$e^*(V(LM))$".

The last term in the fifth line of the last equation on p. 382 should read

$$
\bar{\psi}\, \gamma^\mu \, \delta_\omega \Gamma_\mu \chi \,.
$$

Equation (296) on p. 382 should read

$$
\begin{aligned}
R^{\kappa}{}_{\lambda\mu\nu} \to R^{\kappa}{}_{\lambda\mu\nu} & - \left( \delta^\kappa_\mu\, \nabla_\nu \partial_\lambda \omega - \delta^\kappa_\nu\, \nabla_\mu \partial_\lambda \omega \right) + \left( g_{\lambda\mu}\, g^{\kappa\rho}\, \nabla_\nu \partial_\rho \omega - g_{\lambda\nu}\, g^{\kappa\rho}\, \nabla_\mu \partial_\rho \omega \right) \\
& + \left( \delta^\kappa_\mu\, \partial_\nu \omega\, \partial_\lambda \omega - \delta^\kappa_\nu\, \partial_\mu \omega\, \partial_\lambda \omega \right) - \left( g_{\lambda\mu}\, g^{\kappa\rho}\, \partial_\nu \omega\, \partial_\rho \omega - g_{\lambda\nu}\, g^{\kappa\rho}\, \partial_\mu \omega\, \partial_\rho \omega \right) \\
& - \left( \delta^\kappa_\mu\, g_{\nu\lambda} - \delta^\kappa_\nu\, g_{\mu\lambda} \right) (\partial \omega)^2 \,.
\end{aligned} \tag{296}
$$