ERRATA: BRST Symmetric Gaugeon Formalism for Yang-Mills Fields [Bull. Yamagata Univ. Nat. Sci. 14 (1996) pp.15-25, by M. Koseki, M. Sato and R. Endo]

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ERRATA: BRST Symmetric Gaugeon Formalism for Yang-Mills Fields [Bull.Yamagata Univ. Nat. Sci. 14 (1996) pp.15-25, by M. Koseki, M. Sato and R. Endo]

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In the following, corrected, replaced or added parts to the original version of the paper are written in red color.

Eq. (2.18) on page 19 should be replaced by

$$L = -\frac{1}{4}\boldsymbol{F}^{\mu\nu}\boldsymbol{F}_{\mu\nu} - \boldsymbol{A}^{\mu}\nabla_{\mu}\boldsymbol{B} + \partial^{\mu}Y_{*}\partial_{\mu}Y + \frac{\varepsilon}{2}(Y_{*}+\boldsymbol{\alpha}\boldsymbol{B})^{2} + i(g\boldsymbol{A}_{\mu}\times\boldsymbol{c}_{*})\boldsymbol{\alpha}\partial^{\mu}K$$
$$- i\nabla^{\mu}\boldsymbol{c}_{*}D_{\mu}\boldsymbol{c} - i\partial^{\mu}K_{*}\partial_{\mu}K + L_{\mathrm{matter}}(\psi, D_{\mu}\psi), \tag{2.18}$$

where the red-colored term was dropped in the original version. With this term added Eq.(2.18) is consistent with Eq.(2.20). Similarly, Eq.(2.21) on page 20 should be replaced by

$$J^{\mu}_{\mathrm{B}} = -\boldsymbol{F}^{\mu\nu}D_{\nu}\boldsymbol{c} - i\,\frac{g}{2}\,\nabla^{\mu}\boldsymbol{c}_{*}(\boldsymbol{c}\times\boldsymbol{c}) + (D^{\mu}\boldsymbol{c})\boldsymbol{B} - Y_{*}\overset{\leftrightarrow}{\partial^{\mu}}K$$
$$- g\{(\boldsymbol{\alpha}\times\boldsymbol{B})\boldsymbol{A}^{\mu} + i(\boldsymbol{\alpha}\times\boldsymbol{c}_{*})D^{\mu}\boldsymbol{c}\}K. \tag{2.21}$$

Eq.(3.1) on page 21 should be

$$L_{\mathrm{YTM}} = 2\mathrm{tr}\,\left\{-\frac{1}{4}F^{\mu\nu}F_{\mu\nu} + (A^{\mu}-\alpha F^{\mu})\nabla_{\mu}B\right\}$$
$$+ 2\mathrm{tr}\,\left\{\partial^{\mu}Y_{*}\partial_{\mu}Y + \frac{\varepsilon}{2}{Y_{*}}^{2} - i\nabla^{\mu}c_{*}D_{\mu}c\right\} + L_{\mathrm{matter}}(\psi, D_{\mu}\psi), \tag{3.1}$$

and the same kind of correction is necessary to Eq.(3.15) on page 22:

$$L = 2\mathrm{tr}\,\left\{-\frac{1}{4}F^{\mu\nu}F_{\mu\nu} + (A^{\mu}-\alpha F^{\mu})\nabla_{\mu}B + \partial^{\mu}Y_{*}\partial_{\mu}Y + \frac{\varepsilon}{2}{Y_{*}}^{2}\right\}$$
$$+ 2\mathrm{tr}\,\{-i\nabla^{\mu}c_{*}D_{\mu}c - i\partial^{\mu}K_{*}\partial_{\mu}K\} + L_{\mathrm{matter}}(\psi, D_{\mu}\psi). \tag{3.15}$$

In Eq.(3.24) on page 23, one of the partial derivatives should be replaced by a form covariant derivative ∇^{μ}, that is, we should have

$$L = 2\mathrm{tr}\,\left\{-\frac{1}{4}F^{\mu\nu}F_{\mu\nu}\right\} + L_{\mathrm{matter}}(\psi, D_{\mu}\psi)$$
$$- i\delta_{\mathrm{B}}\left[2\mathrm{tr}\,\left\{c_{*}\nabla^{\mu}(A_{\mu}-\alpha F_{\mu}) - \partial^{\mu}K_{*}\partial_{\mu}Y - \frac{\varepsilon}{2}K_{*}Y_{*}\right\}\right]. \tag{3.24}$$

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