$$ {}^{x}\underset{-}{\boxed{Ч:}}^{\mu} = {}^{x}\vartheta^{\mu}\ {}^{x}\boxed{Ч:} + \underbrace{{}^{x}\underset{-}{\boxed{Ч}} - {}^{x}\vartheta^{\nu}\ {}^{x}_{\nu-}Ч}\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu} = {}^{x}\vartheta^{\nu}\ \overbrace{{}_{\nu}\delta^{\mu}\,{}^{x}\boxed{Ч:} - {}^{x}_{\nu-}Ч\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu}} + {}^{x}\underset{-}{\boxed{Ч}}\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu} $$

$$ \underset{-}{\boxed{Ч:}}^{\mu} = \vartheta^{\mu}\ \boxed{Ч:} + \underbrace{\underset{-}{\boxed{Ч}} - \vartheta^{\nu}\ {}_{\nu-}Ч}\ \underset{0}{\boxed{Ч:}}^{\mu} = \vartheta^{\nu}\ \overbrace{{}_{\nu}\delta^{\mu}\boxed{Ч:} - {}_{\nu-}Ч\,\underset{0}{\boxed{Ч:}}^{\mu}} + \underset{-}{\boxed{Ч}}\ \underset{0}{\boxed{Ч:}}^{\mu} $$

$$ {}_{\mu}\underline{\underset{-}{\boxed{Ч:}}^{\mu}} \ \underset{\text{el current}}{\overset{\text{conserved}}{=}}\ 0 $$

$$ \text{LHS} = {}_{\mu}\underline{{}^{x}\vartheta^{\nu}\ {}_{\nu}\delta^{\mu}\boxed{Ч:} - {}_{\nu-}Ч\,\underset{0}{\boxed{Ч:}}^{\mu} + \underset{-}{\boxed{Ч}}\underset{0}{\boxed{Ч:}}^{\mu}} $$

$$ = {}^{x}_{\mu-}\vartheta^{\nu}\ \underbrace{{}_{\nu}\delta^{\mu}\,{}^{x}\boxed{Ч:} - {}^{x}_{\nu-}Ч\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu}} + {}^{x}\vartheta^{\nu}\ {}_{\mu}\underset{*}{\underline{{}^{x}{}_{\nu}\delta^{\mu}\boxed{Ч:} - {}_{\nu-}Ч\,\underset{0}{\boxed{Ч:}}^{\mu}}} + {}^{x}\underset{-}{\boxed{Ч}}\ {}_{\mu}\underset{**}{\underline{{}^{x}\underset{0}{\boxed{Ч:}}^{\mu}}} + {}_{\mu}\underset{***}{\underline{{}^{x}\underset{-}{\boxed{Ч}}}}\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu} $$

$$ \underset{\text{harm}}{=} {}^{x}_{\mu-}\vartheta^{\nu}\ \underbrace{{}_{\nu}\delta^{\mu}\,{}^{x}\boxed{Ч:} - {}^{x}_{\nu-}Ч\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu}} + {}^{x}\vartheta^{\nu}\ {}_{\nu}\underset{*}{{}^{x}\boxed{Ч:}} + {}^{x}\underset{-}{\boxed{Ч}}\ {}^{x}\underset{\underset{**}{0}}{\boxed{Ч:}} + \underset{***}{\underbrace{{}_{\mu}{}^{x}\underset{-}{\boxed{Ч}} + {}^{x}_{\mu-}Ч\ {}^{x}\underset{0}{\boxed{Ч}}}}\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu} $$

$$ = {}^{x}_{\mu-}\vartheta^{\mu}\ {}^{x}\boxed{Ч:} + {}^{x}\vartheta^{\nu}\ {}_{\nu}{}^{x}\boxed{Ч:} + {}^{x}\underset{-}{\boxed{Ч}}\ {}^{x}\underset{0}{\boxed{Ч:}} + \underbrace{{}_{\mu}{}^{x}\underset{-}{\boxed{Ч}} + {}^{x}_{\mu-}Ч\ {}^{x}\underset{0}{\boxed{Ч}} - {}^{x}_{\mu-}\vartheta^{\nu}\ {}^{x}_{\nu-}Ч}\ {}^{x}\underset{0}{\boxed{Ч:}}^{\mu} $$

$$ = {}^{x}_{\mu-}\vartheta^{\mu}\ \overset{x}{\boxed{{}^{x}Ч:{}^{x}\underset{-}{Ч}}} + {}^{x}\vartheta^{\nu}\ {}_{\nu}\overset{x}{\boxed{{}^{x}Ч:{}^{x}\underset{-}{Ч}}} + \overset{x}{\underset{-}{\boxed{{}^{x}Ч}}}\ \overset{x}{\underset{0}{\boxed{{}^{x}Ч:{}^{x}\underset{-}{Ч}}}} + \underbrace{{}_{\mu}\overset{x}{\underset{-}{\boxed{{}^{x}Ч}}} + {}^{x}_{\mu-}Ч\ \overset{x}{\underset{0}{\boxed{{}^{x}Ч}}} - {}^{x}_{\mu-}\vartheta^{\nu}\ {}^{x}_{\nu-}Ч}\ \overset{x}{\underset{0}{\boxed{{}^{x}Ч:{}^{x}\underset{-}{Ч}}}}^{\mu} \ \underset{\text{inv}}{\overset{\text{Lie alg}}{=}}\ 0 $$

$$ \text{conserved el charge}\ \ \partial_t \int_S^{ds} \underset{-}{\boxed{Ч:}}^{0} = 0 $$

$$ 0 = \partial_\mu \underset{-}{\boxed{Ч:}}^{\mu} = \mathfrak{d}\cdot \overset{-}{\underset{-}{\boxed{Ч:}}} + \partial_t \underset{-}{\boxed{Ч:}}^{0} $$

$$ \Rightarrow 0 = \int_S^{ds} \partial_\mu \underset{-}{\boxed{Ч:}}^{\mu} = \underbrace{\int_S^{ds} \mathfrak{d}\cdot \overset{-}{\underset{-}{\boxed{Ч:}}}}_{=0} + \int_S^{ds} \partial_t \underset{-}{\boxed{Ч:}}^{0} = \partial_t \int_S^{ds} \underset{-}{\boxed{Ч:}}^{0} $$

$$ \text{Poincare current}\ \ \mathcal{J}^{\mu}_{ㄱ:L} = \underbrace{x^{\nu}\,{}_{\nu}ㄱ^{\mu} + L^{\mu}}\ {}^{x}\mathcal{L}_{Ч:Ч} - \eta^{\mu\lambda}\ {}_{\lambda}Ч\ \overbrace{\underbrace{x^{\mu}\,{}_{\mu}ㄱ^{\nu} + L^{\nu}}\ {}_{\nu}Ч + Ч} $$