Summary of identities

$$\{\gamma^\mu, \gamma^\nu\} = 2\eta^{\mu\nu}$$

$$\Lambda_{1/2}(\vec{k}) = \begin{pmatrix} e^{-\frac{\beta}{2}\hat{k}\sigma} & 0 \\ 0 & e^{\frac{\beta}{2}\hat{k}\sigma} \end{pmatrix}$$

$\operatorname{ch}\beta = \omega/m$

$\operatorname{sh}\beta = \vec{k}/m$

$$u^{(r)}_{\vec{k}} = \Lambda_{1/2}\, u^{(r)}_0 \;; \quad u^{(r)}_0 = \sqrt{m}\begin{pmatrix} \xi^r \\ \xi^r \end{pmatrix} \qquad \xi^{(1)} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$v^{(r)}_{\vec{k}} = \Lambda_{1/2}\, v^{(r)}_0 \;; \quad v^{(r)}_0 = \sqrt{m}\begin{pmatrix} \xi^r \\ -\xi^r \end{pmatrix} \qquad \xi^{(2)} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$(\not{k} - m)\, u^{(r)}_{\vec{k}} = 0$	$(\not{k} + m)\, v^{r}_{\vec{k}} = 0$
$\bar{u}^{(r)}_{\vec{k}}\, u^{s}_{\vec{k}} = 2m\,\delta^{rs}$	$\bar{v}^{(r)}_{\vec{k}}\, v^{s}_{\vec{k}} = -2m\,\delta^{rs}$
$(u^r_{\vec{k}})^\dagger u^s_{\vec{k}} = 2\omega\,\delta^{rs}$	$(v^r_{\vec{k}})^\dagger v^s_{\vec{k}} = 2\omega\,\delta^{rs}$
$\sum_r u^r_{\vec{k}}\, \bar{u}^r_{\vec{k}} = \not{k} + m$	$\sum_r v^r_{\vec{k}}\, \bar{v}^r_{\vec{k}} = \not{k} - m$
$(u^r_{\vec{k}})^\dagger v^s_{-\vec{k}} = 0$	$(v^r_{\vec{k}})^\dagger u^s_{-\vec{k}} = 0$
$\bar{u}^r_{\vec{k}}\, v^s_{\vec{k}} = 0$	$\bar{v}^{(r)}_{\vec{k}}\, u^s_{\vec{k}} = 0$