Basis JMS (EFT WET-2)

Variant of the basis suggested by Jenkins, Manohar, and Stoffer (arXiv:1709.04486) with only two dynamical quark flavors.

Sectors

The effective Lagrangian is defined as

$$\mathcal{L}_{\text{eff}} = -\mathcal{H}_{\text{eff}} = \sum_{O_i = O_i^\dagger} C_i\, O_i + \sum_{O_i \neq O_i^\dagger} \left(C_i\, O_i + C_i^*\, O_i^\dagger \right).$$

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WC name	Operator	Type
VnunuLL_1111	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{eL}\gamma_\mu\nu_{eL})$	R
VnunuLL_1122	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\mu L})$	R
VnunuLL_1133	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	R
VnunuLL_2222	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\mu L})$	R
VnunuLL_2233	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	R
VnunuLL_3333	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	R
VnunuLL_1112	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{eL}\gamma_\mu\nu_{\mu L})$	C
VnunuLL_1222	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\mu L})$	C
VnunuLL_1233	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1113	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{eL}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1223	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1333	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1123	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_2223	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_2333	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1232	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{\tau L}\gamma_\mu\nu_{\mu L})$	C
VnunuLL_1323	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1213	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{eL}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_1212	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{\nu}_{eL}\gamma_\mu\nu_{\mu L})$	C
VnunuLL_1313	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{eL}\gamma_\mu\nu_{\tau L})$	C
VnunuLL_2323	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\tau L})(\bar{\nu}_{\mu L}\gamma_\mu\nu_{\tau L})$	C

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WC name	Operator	Type
egamma_11	$\bar{e}_L\sigma^{\mu\nu}e_R\, F_{\mu\nu}$	C
ugamma_11	$\bar{u}_L\sigma^{\mu\nu}u_R\, F_{\mu\nu}$	C
dgamma_11	$\bar{d}_L\sigma^{\mu\nu}d_R\, F_{\mu\nu}$	C

WC name	Operator	Type
uG_11	$\bar{u}_L \sigma^{\mu\nu} T^A u_R \, G^A_{\mu\nu}$	C
dG_11	$\bar{d}_L \sigma^{\mu\nu} T^A d_R \, G^A_{\mu\nu}$	C
G	$f^{ABC} G^{A\nu}_\mu G^{B\rho}_\nu G^{C\mu}_\rho$	R
Gtilde	$f^{ABC} \widetilde{G}^{A\nu}_\mu G^{B\rho}_\nu G^{C\mu}_\rho$	R
VeeLL_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{e}_L \gamma_\mu e_L)$	R
VeuLL_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{u}_L \gamma_\mu u_L)$	R
VedLL_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{d}_L \gamma_\mu d_L)$	R
VuuLL_1111	$(\bar{u}_L \gamma^\mu u_L)(\bar{u}_L \gamma_\mu u_L)$	R
VddLL_1111	$(\bar{d}_L \gamma^\mu d_L)(\bar{d}_L \gamma_\mu d_L)$	R
V1udLL_1111	$(\bar{u}_L \gamma^\mu u_L)(\bar{d}_L \gamma_\mu d_L)$	R
V8udLL_1111	$(\bar{u}_L \gamma^\mu T^A u_L)(\bar{d}_L \gamma_\mu T^A d_L)$	R
VeeRR_1111	$(\bar{e}_R \gamma^\mu e_R)(\bar{e}_R \gamma_\mu e_R)$	R
VeuRR_1111	$(\bar{e}_R \gamma^\mu e_R)(\bar{u}_R \gamma_\mu u_R)$	R
VedRR_1111	$(\bar{e}_R \gamma^\mu e_R)(\bar{d}_R \gamma_\mu d_R)$	R
VuuRR_1111	$(\bar{u}_R \gamma^\mu u_R)(\bar{u}_R \gamma_\mu u_R)$	R
VddRR_1111	$(\bar{d}_R \gamma^\mu d_R)(\bar{d}_R \gamma_\mu d_R)$	R
V1udRR_1111	$(\bar{u}_R \gamma^\mu u_R)(\bar{d}_R \gamma_\mu d_R)$	R
V8udRR_1111	$(\bar{u}_R \gamma^\mu T^A u_R)(\bar{d}_R \gamma_\mu T^A d_R)$	R
VeeLR_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{e}_R \gamma_\mu e_R)$	R
VeuLR_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{u}_R \gamma_\mu u_R)$	R
VedLR_1111	$(\bar{e}_L \gamma^\mu e_L)(\bar{d}_R \gamma_\mu d_R)$	R
VueLR_1111	$(\bar{u}_L \gamma^\mu u_L)(\bar{e}_R \gamma_\mu e_R)$	R
VdeLR_1111	$(\bar{d}_L \gamma^\mu d_L)(\bar{e}_R \gamma_\mu e_R)$	R
V1uuLR_1111	$(\bar{u}_L \gamma^\mu u_L)(\bar{u}_R \gamma_\mu u_R)$	R
V8uuLR_1111	$(\bar{u}_L \gamma^\mu T^A u_L)(\bar{u}_R \gamma_\mu T^A u_R)$	R
V1udLR_1111	$(\bar{u}_L \gamma^\mu u_L)(\bar{d}_R \gamma_\mu d_R)$	R
V8udLR_1111	$(\bar{u}_L \gamma^\mu T^A u_L)(\bar{d}_R \gamma_\mu T^A d_R)$	R
V1duLR_1111	$(\bar{d}_L \gamma^\mu d_L)(\bar{u}_R \gamma_\mu u_R)$	R
V8duLR_1111	$(\bar{d}_L \gamma^\mu T^A d_L)(\bar{u}_R \gamma_\mu T^A u_R)$	R
V1ddLR_1111	$(\bar{d}_L \gamma^\mu d_L)(\bar{d}_R \gamma_\mu d_R)$	R
V8ddLR_1111	$(\bar{d}_L \gamma^\mu T^A d_L)(\bar{d}_R \gamma_\mu T^A d_R)$	R
V1udduLR_1111	$(\bar{u}_L \gamma^\mu d_L)(\bar{d}_R \gamma_\mu u_R)$	C
V8udduLR_1111	$(\bar{u}_L \gamma^\mu T^A d_L)(\bar{d}_R \gamma_\mu T^A u_R)$	C
SeuRL_1111	$(\bar{e}_L e_R)(\bar{u}_R u_L)$	C
SedRL_1111	$(\bar{e}_L e_R)(\bar{d}_R d_L)$	C
SeeRR_1111	$(\bar{e}_L e_R)(\bar{e}_L e_R)$	C
SeuRR_1111	$(\bar{e}_L e_R)(\bar{u}_L u_R)$	C
TeuRR_1111	$(\bar{e}_L \sigma^{\mu\nu} e_R)(\bar{u}_L \sigma_{\mu\nu} u_R)$	C
SedRR_1111	$(\bar{e}_L e_R)(\bar{d}_L d_R)$	C
TedRR_1111	$(\bar{e}_L \sigma^{\mu\nu} e_R)(\bar{d}_L \sigma_{\mu\nu} d_R)$	C
S1uuRR_1111	$(\bar{u}_L u_R)(\bar{u}_L u_R)$	C
S8uuRR_1111	$(\bar{u}_L T^A u_R)(\bar{u}_L T^A u_R)$	C
S1udRR_1111	$(\bar{u}_L u_R)(\bar{d}_L d_R)$	C

WC name	Operator	Type
`S8udRR_1111`	$(\bar{u}_L T^A u_R)(\bar{d}_L T^A d_R)$	C
`S1ddRR_1111`	$(\bar{d}_L d_R)(\bar{d}_L d_R)$	C
`S8ddRR_1111`	$(\bar{d}_L T^A d_R)(\bar{d}_L T^A d_R)$	C
`S1udduRR_1111`	$(\bar{u}_L d_R)(\bar{d}_L u_R)$	C
`S8udduRR_1111`	$(\bar{u}_L T^A d_R)(\bar{d}_L T^A u_R)$	C

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WC name	Operator	Type
`VnueLL_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{e}_L\gamma_\mu e_L)$	R
`VnueLL_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{e}_L\gamma_\mu e_L)$	R
`VnueLL_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{e}_L\gamma_\mu e_L)$	R
`VnuuLL_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{u}_L\gamma_\mu u_L)$	R
`VnuuLL_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{u}_L\gamma_\mu u_L)$	R
`VnuuLL_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{u}_L\gamma_\mu u_L)$	R
`VnudLL_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{d}_L\gamma_\mu d_L)$	R
`VnudLL_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{d}_L\gamma_\mu d_L)$	R
`VnudLL_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{d}_L\gamma_\mu d_L)$	R
`VnueLR_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{e}_R\gamma_\mu e_R)$	R
`VnueLR_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{e}_R\gamma_\mu e_R)$	R
`VnueLR_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{e}_R\gamma_\mu e_R)$	R
`VnuuLR_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{u}_R\gamma_\mu u_R)$	R
`VnuuLR_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{u}_R\gamma_\mu u_R)$	R
`VnuuLR_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{u}_R\gamma_\mu u_R)$	R
`VnudLR_1111`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{eL})(\bar{d}_R\gamma_\mu d_R)$	R
`VnudLR_2211`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\mu L})(\bar{d}_R\gamma_\mu d_R)$	R
`VnudLR_3311`	$(\bar{\nu}_{\tau L}\gamma^\mu\nu_{\tau L})(\bar{d}_R\gamma_\mu d_R)$	R
`VnueLL_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{e}_L\gamma_\mu e_L)$	C
`VnuuLL_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{u}_L\gamma_\mu u_L)$	C
`VnudLL_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{d}_L\gamma_\mu d_L)$	C
`VnueLR_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{e}_R\gamma_\mu e_R)$	C
`VnuuLR_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{u}_R\gamma_\mu u_R)$	C
`VnudLR_1211`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\mu L})(\bar{d}_R\gamma_\mu d_R)$	C
`VnueLL_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{e}_L\gamma_\mu e_L)$	C
`VnuuLL_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{u}_L\gamma_\mu u_L)$	C
`VnudLL_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{d}_L\gamma_\mu d_L)$	C
`VnueLR_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{e}_R\gamma_\mu e_R)$	C
`VnuuLR_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{u}_R\gamma_\mu u_R)$	C
`VnudLR_1311`	$(\bar{\nu}_{eL}\gamma^\mu\nu_{\tau L})(\bar{d}_R\gamma_\mu d_R)$	C
`VnueLL_2311`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\tau L})(\bar{e}_L\gamma_\mu e_L)$	C
`VnuuLL_2311`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\tau L})(\bar{u}_L\gamma_\mu u_L)$	C
`VnudLL_2311`	$(\bar{\nu}_{\mu L}\gamma^\mu\nu_{\tau L})(\bar{d}_L\gamma_\mu d_L)$	C

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WC name	Operator	Type
VnueLR_2311	$(\bar{\nu}_{\mu L}\gamma^{\mu}\nu_{\tau L})(\bar{e}_R\gamma_{\mu}e_R)$	C
VnuuLR_2311	$(\bar{\nu}_{\mu L}\gamma^{\mu}\nu_{\tau L})(\bar{u}_R\gamma_{\mu}u_R)$	C
VnudLR_2311	$(\bar{\nu}_{\mu L}\gamma^{\mu}\nu_{\tau L})(\bar{d}_R\gamma_{\mu}d_R)$	C

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WC name	Operator	Type
SdudRL_1111	$\epsilon_{\alpha\beta\gamma}(d_R^{\alpha T}Cu_R^{\beta})(d_L^{\gamma T}C\nu_{eL})$	C
SdudRL_1112	$\epsilon_{\alpha\beta\gamma}(d_R^{\alpha T}Cu_R^{\beta})(d_L^{\gamma T}C\nu_{\mu L})$	C
SdudRL_1113	$\epsilon_{\alpha\beta\gamma}(d_R^{\alpha T}Cu_R^{\beta})(d_L^{\gamma T}C\nu_{\tau L})$	C
SuddLL_1111	$\epsilon_{\alpha\beta\gamma}(u_L^{\alpha T}Cd_L^{\beta})(d_L^{\gamma T}C\nu_{eL})$	C
SuddLL_1112	$\epsilon_{\alpha\beta\gamma}(u_L^{\alpha T}Cd_L^{\beta})(d_L^{\gamma T}C\nu_{\mu L})$	C
SuddLL_1113	$\epsilon_{\alpha\beta\gamma}(u_L^{\alpha T}Cd_L^{\beta})(d_L^{\gamma T}C\nu_{\tau L})$	C

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WC name	Operator	Type
SduuLL_1111	$\epsilon_{\alpha\beta\gamma}(d_L^{\alpha T}Cu_L^{\beta})(u_L^{\gamma T}Ce_L)$	C
SduuLR_1111	$\epsilon_{\alpha\beta\gamma}(d_L^{\alpha T}Cu_L^{\beta})(u_R^{\gamma T}Ce_R)$	C
SduuRL_1111	$\epsilon_{\alpha\beta\gamma}(d_R^{\alpha T}Cu_R^{\beta})(u_L^{\gamma T}Ce_L)$	C
SduuRR_1111	$\epsilon_{\alpha\beta\gamma}(d_R^{\alpha T}Cu_R^{\beta})(u_R^{\gamma T}Ce_R)$	C