

Portal	Effective operator	$\sqrt{s}$ [GeV]	$\mathcal{L}[ab^{-1}]$	Sensitivity	Figs.	Ref.
scalar	$\lambda_{HP} H ^2\Phi^2 \rightarrow$ scalar mixing $\sin\theta$	250	5	$\sin\theta \sim 10^{-1}$	21	[106]
fermion	$y_\ell\bar{\chi}_L S^\dagger\ell_R + \text{H.c.}$	250	5	covering $100 \text{ GeV} < m_S < 170 \text{ GeV}$	22	[56]
	$\kappa\Phi\bar{q}'_L\ell_R + \text{H.c.}$	250	5	$m_\Phi \sim 10 \text{ TeV}$ for $c\tau_0 \in [10, 10^4] \text{ mm}$	23	[107]
	$y\Phi\bar{F}_L\ell_R + \text{H.c.}$	240	5.6	$y\theta_L \in [10^{-11}, 10^{-7}]$	24	[108]
gauge	$\tilde{K}_\mu \left( g \frac{m_K^2 t_W}{m_{Z,\text{SM}}^2 - m_K^2} \epsilon J_Z^\mu + e\epsilon J_{\text{em}}^\mu \right) + g_D \bar{\chi} \left( \tilde{K}_\mu + \frac{t_W m_{Z,\text{SM}}^2}{m_K^2 - m_{Z,\text{SM}}^2} \epsilon \tilde{Z}_\mu \right) \gamma^\mu \chi$	250	5	$\epsilon \sim 10^{-3}$ for $m_K < 125 \text{ GeV}$	25, 26	[106]
	$\epsilon A_\mu \bar{\chi} \gamma^\mu \chi$	250	5	$\epsilon \sim 0.1$ for $m_\chi \sim 50 \text{ GeV}$	27	[109]
		91.2	2.6	$\epsilon \sim 0.02$ for $m_\chi \sim 5 \text{ GeV}$		
		160	16	$\epsilon \sim 0.5$ for $m_\chi \sim 10 \text{ GeV}$		
	$\frac{1}{2}\mu_\chi\bar{\chi}\sigma^{\mu\nu}\chi F_{\mu\nu} + \frac{i}{2}d_\chi\bar{\chi}\sigma^{\mu\nu}\gamma^5\chi F_{\mu\nu}$	91.2	100	$\mu_\chi, d_\chi \sim 4 \times 10^{-7} \mu_B$ for $m_\chi < 25 \text{ GeV}$	28	[110]
$-a_\chi\bar{\chi}\gamma^\mu\gamma^5\chi\partial^\nu F_{\mu\nu} + b_\chi\bar{\chi}\gamma^\mu\chi\partial^\nu F_{\mu\nu}$	240	20	$a_\chi, b_\chi \sim 1 \times 10^{-6} \text{ GeV}^{-2}$ for $m_\chi < 80 \text{ GeV}$			
EFT	$\frac{1}{\Lambda^2} \sum_i (\bar{\chi}\gamma_\mu(1-\gamma_5)\chi) (\bar{\ell}\gamma^\mu(1-\gamma_5)\ell)$	250	5	$\Lambda_i \sim 2 \text{ TeV}$ ( $m_\chi = 0$ )	29	[111]
	$\frac{1}{\Lambda_A^2} \bar{\chi}\gamma_\mu\gamma_5\chi\bar{\ell}\gamma^\mu\gamma_5\ell$	250	5	$\Lambda_A \sim 1.5 \text{ TeV}$	30	[109]
	$\sum_i \frac{1}{\Lambda_i^2} (\bar{e}\Gamma_\mu e) (\bar{\nu}_L\Gamma^\mu\chi_L) + \text{H.c.}$ $\Gamma_\mu = 1, \gamma_5, \gamma_\mu, \gamma_\mu\gamma_5, \sigma_{\mu\nu}$	240	20	$\Lambda_i \sim 1 \text{ TeV}$ ( $m_\chi = 0$ )	31	[112]

# To-do list

- Mention more DM & dark particle scenarios in the “introduction”,
- More comments on the summary table.
- Some brief comments on the prospects with 20 ab-1.
- Comparison with prospects at (HL)-LHC in Figs. 21, 24, 25, 27 and 28.  
Comparison with limits from LEP in Fig. 26.
- Contributions from Pengfei Yin.