

EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 1$ mm, Dark Hadron Mass = 10 GeV)

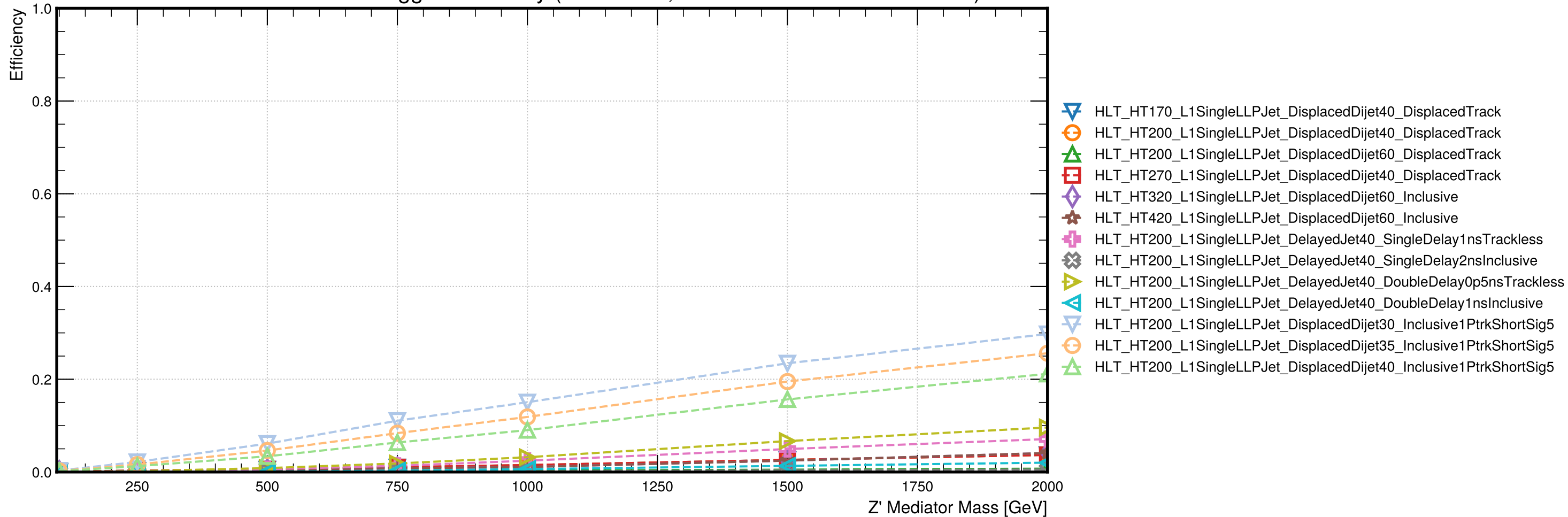













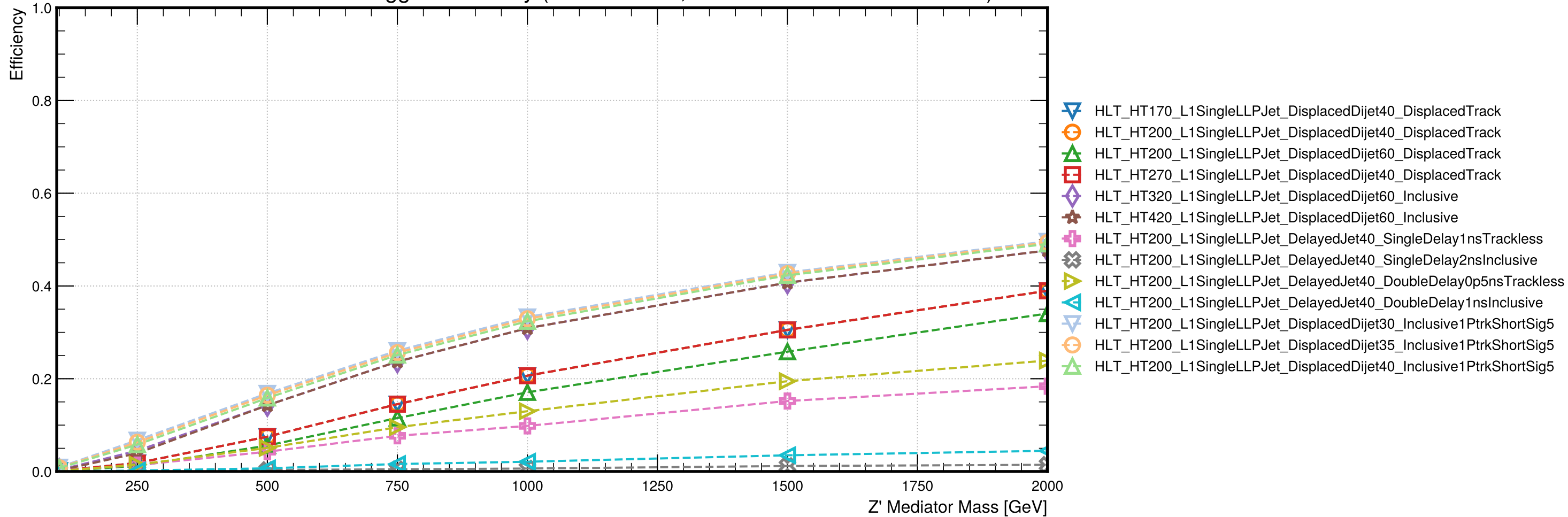


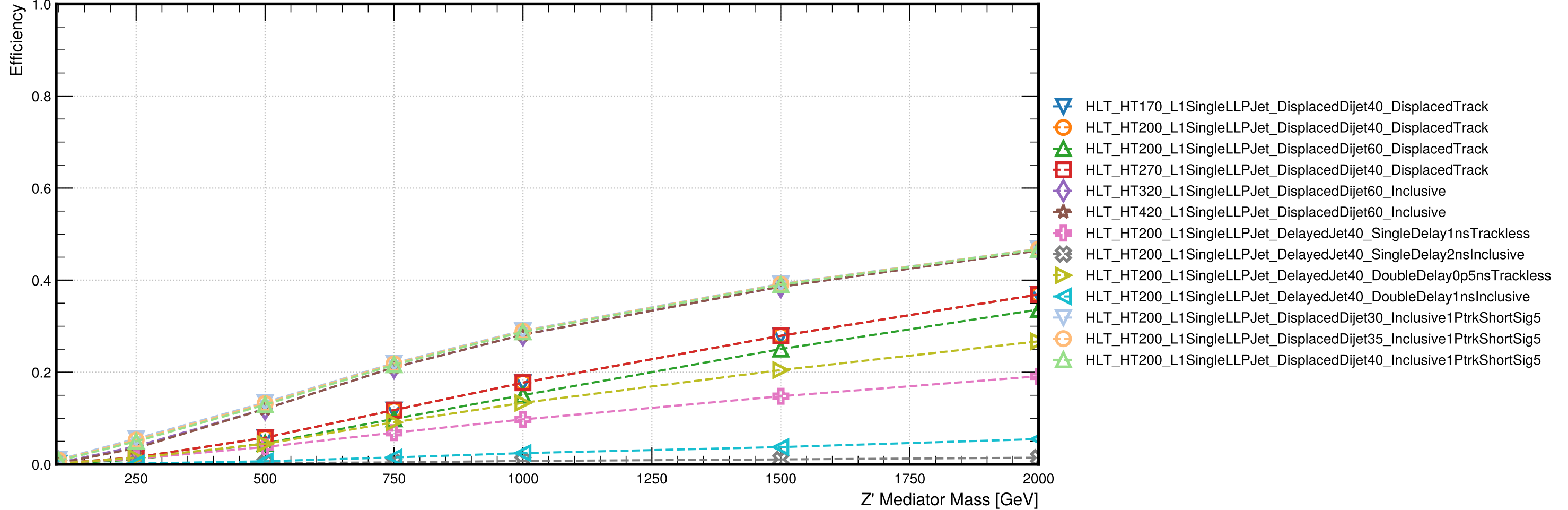
Figure 10 is a line plot showing the efficiency of the Z' search as a function of the Z' mediator mass for various decay channels. The x-axis represents the Z' Mediator Mass in GeV, ranging from 0 to 2000. The y-axis represents the Efficiency, ranging from 0.0 to 1.0. The plot includes data for Z' to Z gamma (blue), Z' to Z eta (orange), Z' to Z eta' (green), Z' to Z eta eta' (yellow), Z' to Z eta eta eta' (purple), Z' to Z eta eta eta eta' (red), Z' to Z eta eta eta eta eta' (cyan), and Z' to Z eta eta eta eta eta eta' (grey). All channels show an increasing trend in efficiency with increasing mass, with Z' to Z gamma having the highest efficiency and Z' to Z eta eta eta eta eta eta' having the lowest.

Z' Mediator Mass [GeV]	Z' to Z gamma	Z' to Z eta	Z' to Z eta'	Z' to Z eta eta'	Z' to Z eta eta eta'	Z' to Z eta eta eta eta'	Z' to Z eta eta eta eta eta'	Z' to Z eta eta eta eta eta eta'
250	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
500	0.08	0.05	0.04	0.02	0.01	0.01	0.01	0.01
750	0.14	0.10	0.08	0.04	0.02	0.01	0.01	0.01
1000	0.20	0.15	0.12	0.06	0.03	0.02	0.01	0.01
1500	0.28	0.22	0.18	0.10	0.05	0.03	0.02	0.01
2000	0.35	0.28	0.22	0.15	0.08	0.04	0.02	0.01

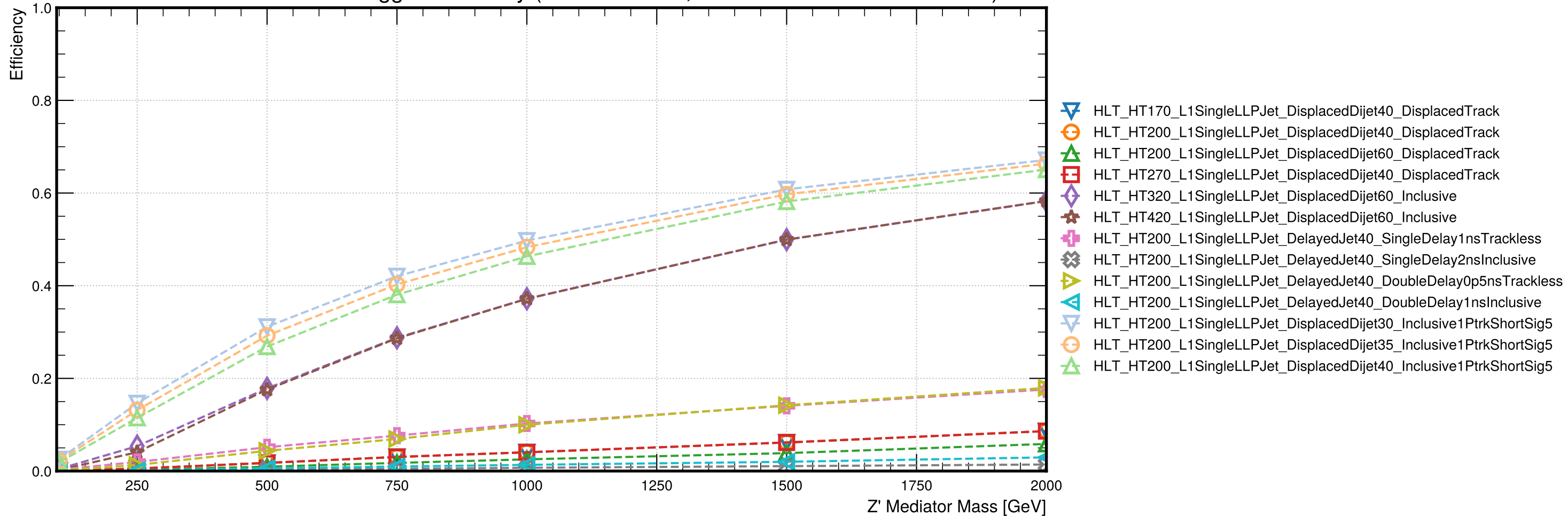
- | | |
|---|---|
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|  | HLT_HT270_L1SingleLLPJet_DisplacedDijet40_DisplacedTrack |
|  | HLT_HT320_L1SingleLLPJet_DisplacedDijet60_Inclusive |
|  | HLT_HT420_L1SingleLLPJet_DisplacedDijet60_Inclusive |
|  | HLT_HT200_L1SingleLLPJet_DelayedJet40_SingleDelay1nsTrackless |
|  | HLT_HT200_L1SingleLLPJet_DelayedJet40_SingleDelay2nsInclusive |
|  | HLT_HT200_L1SingleLLPJet_DelayedJet40_DoubleDelay0p5nsTrackless |
|  | HLT_HT200_L1SingleLLPJet_DelayedJet40_DoubleDelay1nsInclusive |
|  | HLT_HT200_L1SingleLLPJet_DisplacedDijet30_Inclusive1PtrkShortSig5 |
|  | HLT_HT200_L1SingleLLPJet_DisplacedDijet35_Inclusive1PtrkShortSig5 |
|  | HLT_HT200_L1SingleLLPJet_DisplacedDijet40_Inclusive1PtrkShortSig5 |

EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 100$ mm, Dark Hadron Mass = 10 GeV)

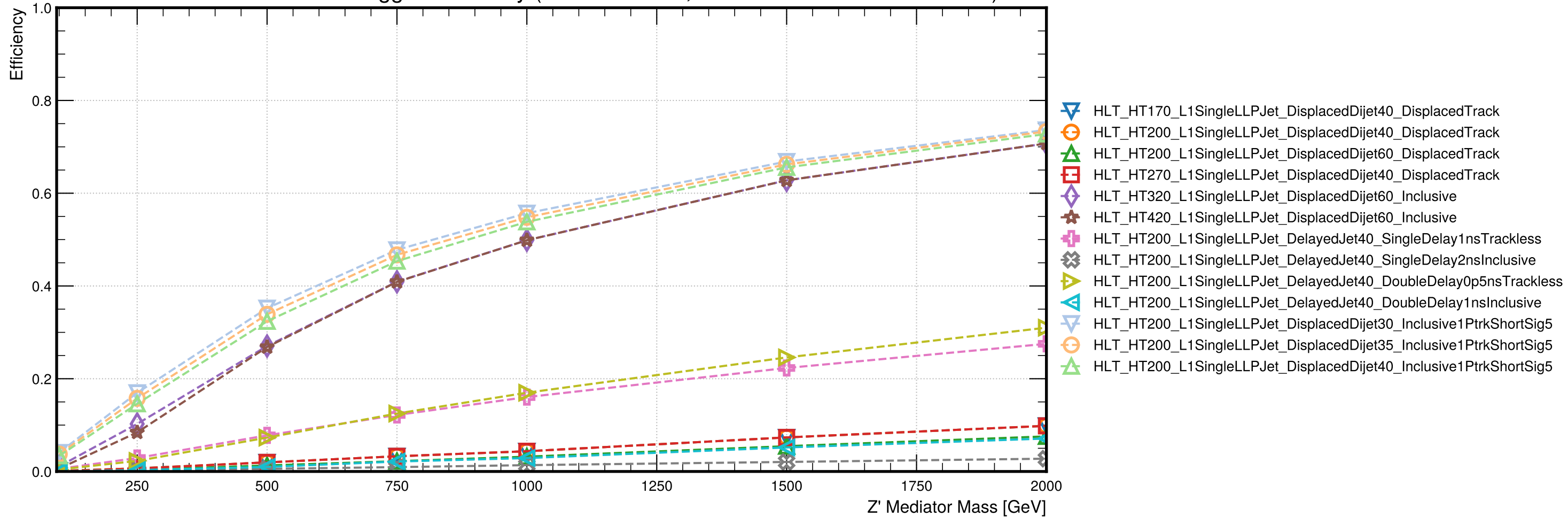
EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 100$ mm, Dark Hadron Mass = 20 GeV)



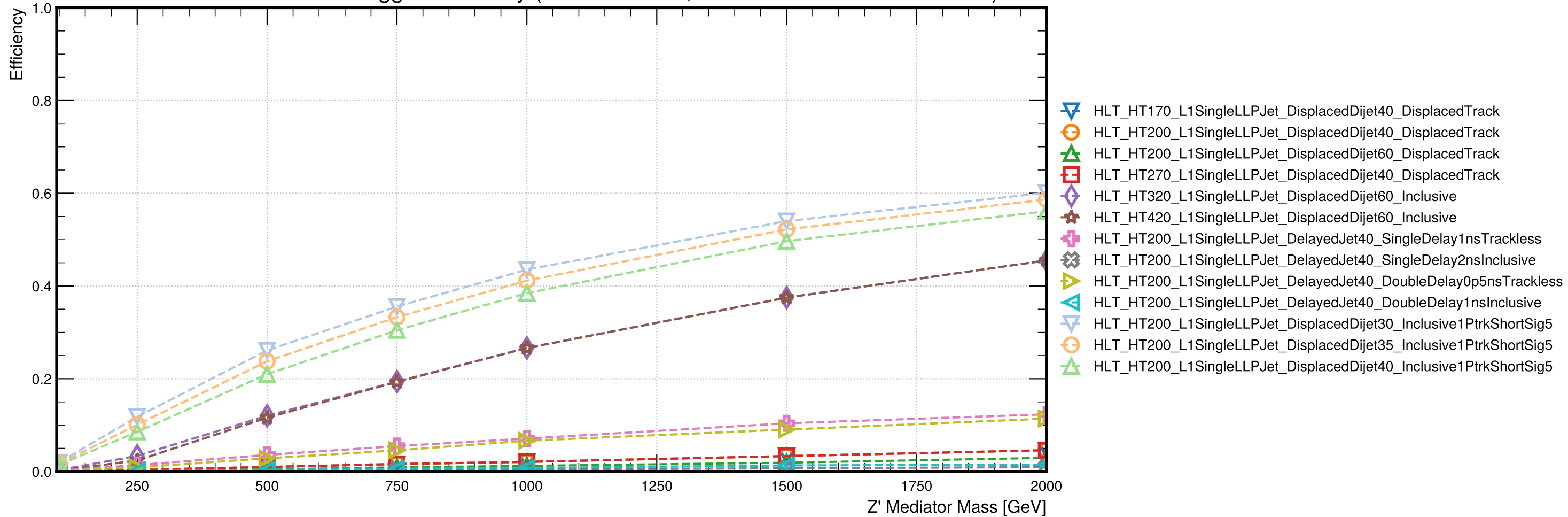
EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 1000$ mm, Dark Hadron Mass = 10 GeV)



EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 1000$ mm, Dark Hadron Mass = 20 GeV)



EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 1500$ mm, Dark Hadron Mass = 10 GeV)



EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 1500$ mm, Dark Hadron Mass = 20 GeV)

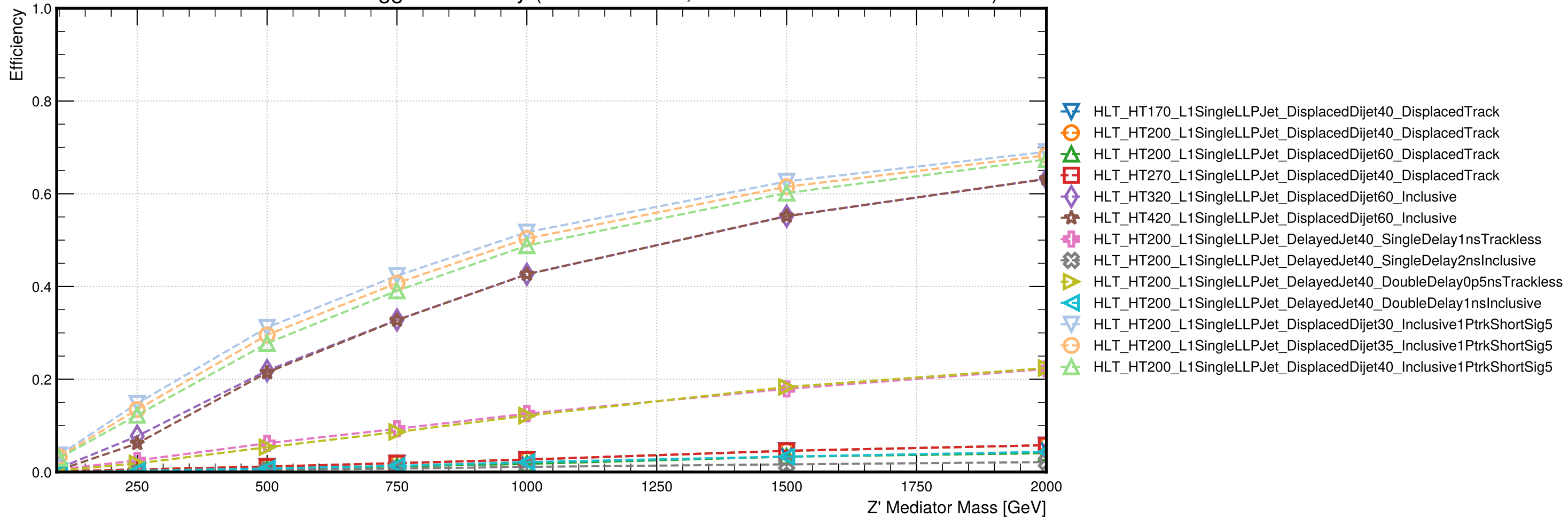
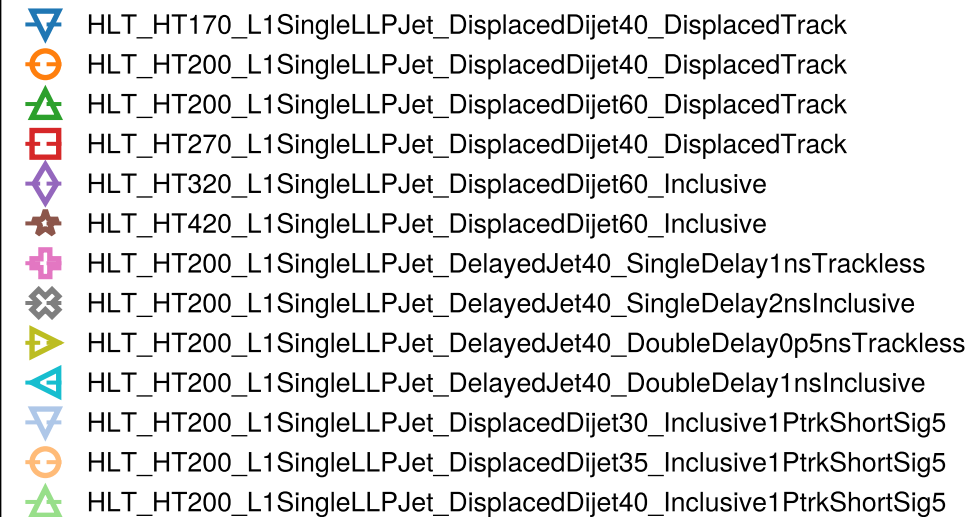


Figure 10 is a line plot showing the efficiency of the Z' search as a function of the Z' mediator mass for different Z' decay channels. The x-axis represents the Z' Mediator Mass in GeV, ranging from 250 to 2000. The y-axis represents the Efficiency, ranging from 0.0 to 1.0. The plot includes several data series, each represented by a dashed line with distinct markers and colors. The series include:

- Blue dashed line with downward-pointing triangles (highest efficiency).
- Orange dashed line with open circles.
- Green dashed line with open triangles.
- Dark red dashed line with solid diamonds.
- Pink dashed line with open squares.
- Olive dashed line with open squares.
- Red dashed line with open squares.
- Teal dashed line with open squares.

All series show an increasing trend in efficiency as the Z' mediator mass increases. The blue series consistently shows the highest efficiency, while the teal series shows the lowest efficiency across the entire mass range.



EMJ t-channel LLP HLT Trigger Efficiency ($c\tau = 2000$ mm, Dark Hadron Mass = 20 GeV)

