GetPauliStringOverlap

```
SetDirectory @ NotebookDirectory[];
Import["../Link/QuESTlink.m"];
```

Doc

? GetPauliStringOverlap

Symbol

GetPauliStringOverlap[a, b] returns the Pauli products common to both given weighted sums of Pauli

strings, with coefficients equal to the conjugate of the 'a' coefficients multiplied by those of 'b'.

$\vee$

Correctness

GetPauliStringOverlap[Id_0, X_0]

0

GetPauliStringOverlap[X_0, X_0]

X_0

GetPauliStringOverlap[X_{2000}, X_{2000}]

X_{2000}

GetPauliStringOverlap[X_0, X_1]

0

GetPauliStringOverlap[a Z_{10}, b Z_{10}]

b Conjugate[a] Z_{10}

GetPauliStringOverlap[a X_0 Y_1 Z_2 + b X_0, c X_0 Y_1 Z_2 + d Z_{10}]

c Conjugate[a] X_0 Y_1 Z_2

GetPauliStringOverlap[Id_0, Id_{10}]

Id_0

GetPauliStringOverlap[Id_2 X_1 Id_0, X_1]

X_1

GetPauliStringOverlap[a X_0 + b X_0 + c X_0, X_0]

Conjugate[a + b + c] X_0

```
GetPauliStringOverlap[a Id_0 + b Id_2, b Id_10 + d Id_50]
```
$(b + d) \, \text{Conjugate}[a + b] \, \text{Id}_0$

Errors

```
GetPauliStringOverlap[]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_0]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_0 + 1, Z_0]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_{-1}, X_{-1}]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_0, X_0 Y_0]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_0, X_0 X_0]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```

```
GetPauliStringOverlap[X_0, Unknown_0]
```

⊙ GetPauliStringOverlap: Invalid arguments. See ?GetPauliStringOverlap

```
$Failed
```