Hysteresis regulated PWM

- Command - Command
- h
- S1 closed
- S4 open
- Close S4, open S1
- Command
- S4
- Command
- S1
- i_A
- V_A
- L42 3/14
INSTANTANEOUS REAL AND REACTIVE POWER

Low Pass Filter on P, Q

\[
\frac{2}{3} \left( V_a^2 + V_b^2 + 0.0001 \right)
\]

\[\text{P(4)}\]

\[\text{Q(4)}\]
Compensator Currents in Alpha-Beta Frame

\[
\begin{bmatrix}
U_a \\
U_b
\end{bmatrix} = \begin{bmatrix} \alpha(t) \\ \gamma(t) \end{bmatrix}
\]

Transform Filter Currents to ABC Frame

Gain = 1

Gain = -1
Filtered Current and phase A voltage

Voltage/100

Source Current
Compensator turns on

(file af switching.pl4; x-var t) v:VSA c:VSA -VSLA
factors: 1 0.01 1
offsets: 0 0 0
- Switching frequency is variable
Current regulated PWM

- Also sometimes used in response to external faults

(in general, not active filter)

Very little overload capability

\[
\begin{align*}
VSC & \quad \text{PCC} \\
\text{Fault} & \quad B_{TH} \quad V_{TH}
\end{align*}
\]
- Often fault limited
  to 110% - 150% of rated load current

- Typically balanced 300 currents

- Control power factor → somewhat leading