



# Analysis of the spikes

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# Effect of a Flux jump External to the Coils

$$V_{12} = \frac{d\Phi_{FJ}}{dt} + L_{12} \frac{dl}{dt}$$

$$V_{34} = \frac{d\Phi_{FJ}}{dt} + L_{34} \frac{dl}{dt}$$

$$V_{56} = \frac{d\Phi_{FJ}}{dt} \frac{1}{n} + L_{56} \frac{dl}{dt}$$

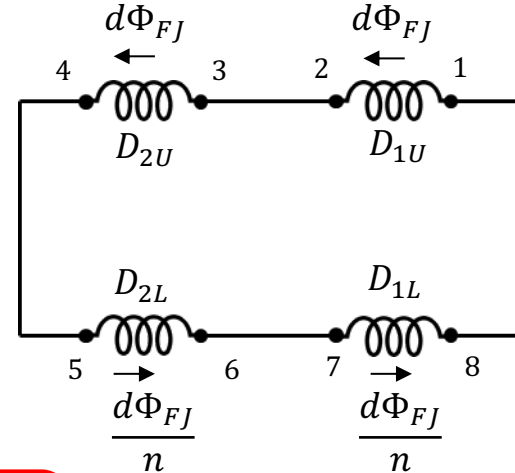
$$V_{78} = \frac{d\Phi_{FJ}}{dt} \frac{1}{n} + L_{78} \frac{dl}{dt}$$

$$L_{12} = L_{34} + L_{56} + L_{78} = L$$

$$V_{12} + V_{34} + V_{56} + V_{78} = 0$$

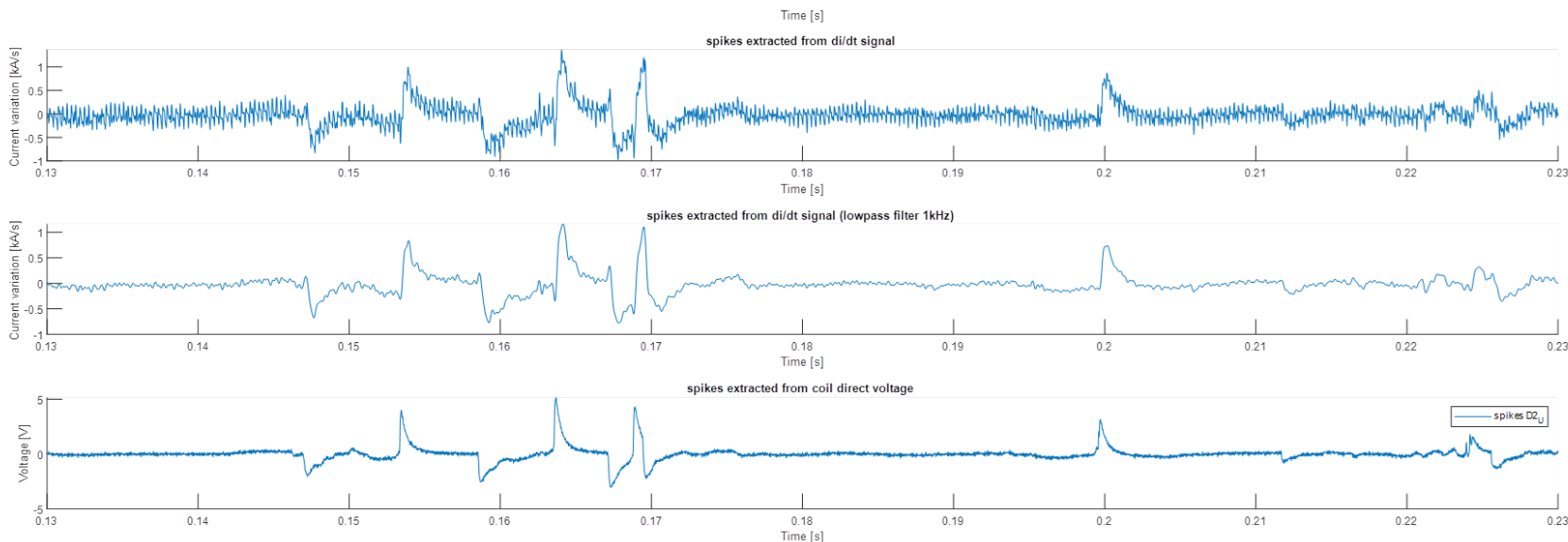
$$\frac{d\Phi_{FJ}}{dt} = -2L \frac{dl}{dt} \left( \frac{n}{n+1} \right)$$

$$V_{12} = V_{34} = -V_{56} = -V_{78} = L \frac{dl}{dt} \left( \frac{1-n}{n+1} \right)$$



# Spikes analysis in progress

HCLMBHA001-CR000001\_2\_K2002241006\_a001(0)  
First discharge at 9kA during 2nd run - standard behaviour



$$V = L \frac{di}{dt} \left( \frac{n-1}{n+1} \right)$$

$$L \sim 15 \text{ mH}$$

$$\frac{di}{dt} \sim 1000 \text{ A/s}$$

Hypothesis  $n=2$

$$V = 5 \text{ V}$$