

## Convolution

The convolution  $C$  of a function  $F$  with a function  $G$  (of a parameter  $t$ ) is defined as

$$C(t) = \int_{-\infty}^{\infty} F(t-t') \cdot G(t') \cdot dt'$$

In time resolved fluorescence it describes the effects of an IRF with finite width on the observed decay:

$$Dec_{\{obs\}}(t) = \int_{-\infty}^{\infty} Dec(t-t') \cdot IRF(t') \cdot dt'$$

where  $Dec(t)$  is the unconvolved ('real') decay starting at a given time  $t=0$

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