**Advanced high dynamic range fluorescence microscopy with Poisson noise modeling and integrated edge-preserving denoising**

* First known application of HDR in fluorescence imaging
* Takes into account poisson noise of fluorescence levels
* Uses weighted Kullback-Leibler divergence-type term to determine relative contributions of the different exp times (derived from Bayesian modeling)
* Use total variation (TV) functional for regularization term
* two step process
  1. estimate camera response function (ie how linear is are the intensity read out values?)
  2. Use function to make HDR images from series of LDR images
* Model probability as Markov random field
* e weighted mean of the Kullback-Leibler divergence
* Used 3 million pixels to estimate CRF function