

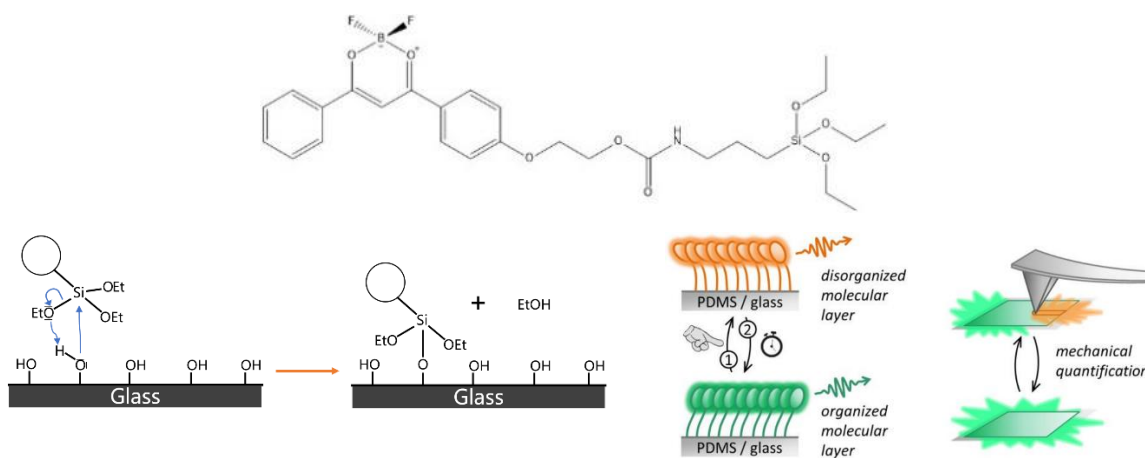
## Grafted difluoroboron $\beta$ -diketonates derivatives, towards mechanofluorochromic surfaces

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Boron difluoride  $\beta$ -diketonates (DFBs) have been shown to exhibit mechanofluorochromism (MFC), a phenomenon where mechanical stimulation induces a typically reversible change in their fluorescence properties, as powder or deposited materials.<sup>1</sup> A DFB derivative bearing a triethoxysilane functional group was synthesized to allow the functionalization of glass substrates (Fig. 1). The photophysical and MFC properties of DFB grafted on glass were characterized and compared to solution, powder, and drop-casted forms, via steady-state and time-resolved spectroscopy. Thermal annealing of the drop-casted samples caused a hypsochromic shift in the maximum fluorescence emission wavelength indicating a return to a more arranged structure. This was not observed in the grafted systems, where MFC was lost after thermal annealing. Studying functional surfaces can potentially extend MFC applications to new fields, such as microfluidics.



**Figure 1.** The synthesized DFB Derivative (**top**) together with the grafting mechanism (**bottom left**) and the principle of MFC on surfaces (**bottom right**).

[1] D., Zhang, G., Lu, J., Sabat, M. & Fraser, C. L, *J. Am. Chem. Soc.*, **2010**, 132 (7), 2160-2162.