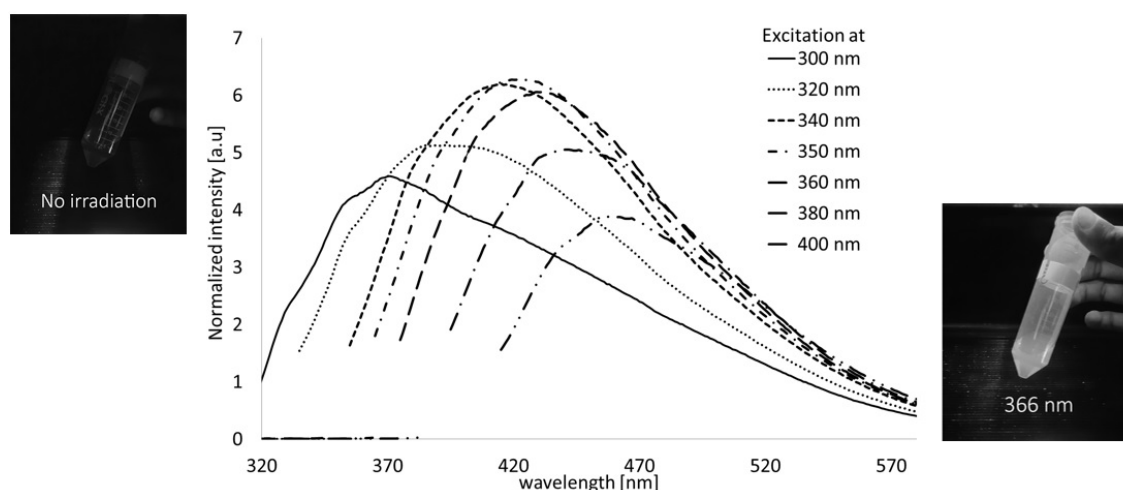


**Different types of carbon quantum dots obtained from wastes of fermentation**M. Varisco<sup>1</sup>, D. Zufferey<sup>1</sup>, O. Mamula Steiner<sup>1\*</sup><sup>1</sup>University of Applied Sciences of Western Switzerland, HEIA-FR

CQDs are a multifunctional material which knew a rapid growth of interest from its discovery in 2004,<sup>1</sup> because of their multiples applications: catalysis agents, bio-imaging chromophores, photoluminescent or electroluminescent materials, metal ions detectors and electron-acceptors for photovoltaics.<sup>2, 3</sup>

Many starting materials have been used to obtain the CQDs. Here we present a new material source which is the wine lees, an expensive-to-treat, phytotoxic waste resulting in vast amounts from the wine fermentation.<sup>4</sup>

We will present here the procedure leading to an easy, scalable synthetic process for CQDs as well as their characterisation (e.g. photoluminescence, fig.1).



[1] X. Xu, R. Ray, Y. Gu, H. J. Ploehn, L. Gearheart, K. Raker and W. A. Scrivens, *J Am Chem Soc*, 2004, **126**, 12736-12737:

[2] Y. Wang and A. Hu, *J Mater Chem C*, 2014, **2**, 6921-6939.

[3] Y. Du and S. Guo, *Nanoscale*, 2016, **8**, 2532-2543.

[4] R. Liu, D. Wu, S. Liu, K. Koynov, W. Knoll and Q. Li, *Angew Chem Int Ed Engl*, 2009, **48**, 4598-4601.