In nature, we can find a large variety of quartz with different ensemble of impurities, which often provide different colors, as green, pink, brown, blue, etc. The most abundant varieties found in sediments are the green and hyaline, which is transparent quartz. In the OSL dating method, a few milligrams of quartz grains, with a diameter of about 100 micro m, are selected to constitute an aliquot, which will be used in the SAR procedure (Murray and Wintley, 2003, Rossetti et al, 2015), in this aliquot a mixture of quartz of diverse variety can be present. About 40 aliquots are used to determine the equivalent dose (ED). Each aliquot can provide a certain value of ED, however, its OSL response must, at least, pass through the recycling and recovery tests, about 20-60 percentage of the aliquots pass the tests and provide an appropriate OSL growth curve.

It is not known why some of these aliquots supplied unexpected OSL response, however, OSL is closely linked to the crystalline lattice and its defects and impurities included in the grain, so, as grains may contain a set of different point defects, they will probably have a different OSL response. Therefore, the luminescence properties of green and hyaline quartz samples were studied to verify their applicability in OSL dating. These quartz crystals were chosen because they have large difference in the trace elements varieties and concentrations, and, therefore, they should exhibit dissimilar luminescent properties as well. CW-OSL, LM-OSL and PLM-OSL emissions were investigated and could be adjusted by the general-order kinetic model with three components, fast, medium and long. The results of LM and PLM-OSL were very consistent. The preheating temperature test and SAR protocol were applied to these crystals and the green quartz had an appropriate behavior to be used in OSL dating, but the hyaline cannot be used in the SAR protocol because it exhibits intense photo transfer behavior in the temperature range of 150 to 260°C, which can be related to their TL peaks obtained at UV emission.


**OSL phototransfer investigations of the green and hyaline quartz**

Sonia Hatsue Tatumi  
*UNIFESP-SP-Brasil*

Diego Renan Giglioti Tudela  
*USP-SP-Brasil*