



QR coding diamonds with precision femtosecond-laser technology

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How to and why make a QR code in the hardest material in the world? Femtosecond laser technology can do it. This might bring solutions for the jewellery industry.

As recently published, precision femtosecond-laser technology can bring an answer to write micro-QR codes in diamonds. Nowadays, lasers are already used to cut diamonds. The challenge for QR coding is to do it in way that there is no loss in quality. That is precisely what has been achieved by A.J. Batista et al. They made a 25 x 25 points matrix build out of dots of 14 micrometre in size, resulting in a QR code of 432 μm in size. According to the applicable standards GIA (Gemological Institute of America) and CIBJO (Confédération Internationale pour la Bijouterie, Joaillerie), there is no loss in quality observed measuring the gems before and after QR coding.

Such micro-encoding could facilitate the identification of the gems, which today is done by comparing the paper description with a detailed analysis of the stone. This is time-consuming work that sometimes requires to remove the gem out of its holder. QR coding is proposed as an alternative to the GIA coding that has different dimensions.

Source

QR code micro-certified gemstones femtosecond writing and Raman characterization in Diamond, Ruby and Sapphire, A. J. Batista et al., Scientific Reports 9, nr. 8927 (2019)

This blog has been written within the COOCK [Surfacescript](#) project.

(Picture above: Micro-QR code written in diamond using fs-laser technology)