Abstract Submitted
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Investigation of xerogel sensor materials by soft x-ray laser ablation mass spectrometry[1] MARINA PILIPENKO, Lomonosov Moscow State University of Fine Chemical Technologies, ILYA KUZNETSOV, JORGE FILEVICH, MARK WOOLSTON, Colorado State University, DAVID CARLTON, WEILUN CHAO, ERIK ANDERSON, Lawrence Berkeley National Laboratory, JORGE ROCCA, Colorado State University, ALEXANDER KOSHKIN, Lomonosov Moscow State University of Fine Chemical Technologies, CARMEN MENONI, Colorado State University — Xerogels possess many properties that make them prospective candidate for new generation sensor material. By modification of a well-established gel synthesis method, based on supercritical drying, it was possible to obtain a low-cost and highly porous compound. This material has micro volume printing capability, i.e. can be spin-coated to form a thin film. With stable sensing molecules introduced into the pores of its matrix, xerogels provide a fluorescent response to vapors of target compounds, making them identifiable at low concentrations in the air. There are many factors that influence the stability of the xerogel and the reliability of the response signal appearance – from choosing the right synthesis method to selecting a proper sensor molecule. We have investigated the chemical composition of xerogels by soft x-ray laser ablation mass spectrometry. Various morphologies of the printed films as a function of gel formation stage were demonstrated. Results will be presented on the influence of Nile Red dye sensor molecules on the matrix structure with the volumetric distribution shown.

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