***IN-SITU* SOL-GEL PREPARATION OF POROUS ALUMINA MONOLITHS FOR CHROMATOGRAPHIC SEPARATIONS OF ADENOSINE PHOSPHATES.** [a]Zuzana Zajickova, [a]Emir Rubi, and [b]Frantisek Svec, [a] Department of Physical Sciences, Barry University, 11300 NE 2nd Ave, Miami Shores, FL 33161; [b] The Molecular Foundry, E. O. Lawrence Berkeley National Laboratory, Mailstop 67R6110, Berkeley, CA 94720.

A method enabling the *in-situ* preparation of porous alumina monoliths within fused silica capillaries has been developed. These monoliths were prepared using the sol-gel process from a mixture consisting of an inorganic aluminum salt, a porogen, an epoxide, and a solvent. We investigated the effects of varying the preparation conditions on the physical characteristics of the monoliths with respect to their potential application in chromatographic separations. The best columns were obtained from a mixture of aluminum chloride hexahydrate, N,N-dimethylformamide, water, ethanol and propylene oxide. Adenosine phosphates were separated with retention increasing according to number of phosphate functionalities.