



FROM STUDENT RESEARCH TO COMMERCIAL PRODUCT

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For more than ten years the National Science Foundation has sponsored RUI grants at SJSU on the modification and characterization of surfaces for materials in separation science. Much of the work has been carried out by undergraduate and Master's level students in collaboration with Adjunct Professor Maria Matyska in the Chemistry Department. During this time a new approach to the modification of surfaces has been developed that can be useful in the production of chromatographic stationary phases, capillaries for electrophoretic methods and planar microfluidic or nanofluidic devices.

It has taken a number of years for the uniqueness of the materials and surfaces produced by this approach to be identified, characterized and appreciated. Now both the hydride surface as well as some of the organic groups attached to it have lead to a new class of stationary phases for chromatography (Type C silica). The same process applied to the walls of fused silica capillaries after etching has resulted in the development of a whole new range of separation devices for electrophoresis. The HPLC stationary phases (marketed as Cogent Type-C silica™) and the capillaries (marketed as CelerityCE™) are available from MicroSolv Technology Corporation of Eatontown, NJ (<http://www.mtc-usa.com>).



Pictures - SJSU undergraduate student working on capillary research (top); Celerity capillaries available from MicroSolv Inc. (center); Cogent HPLC column in Qx2 format for direct injection into a mass spectrometer (bottom).