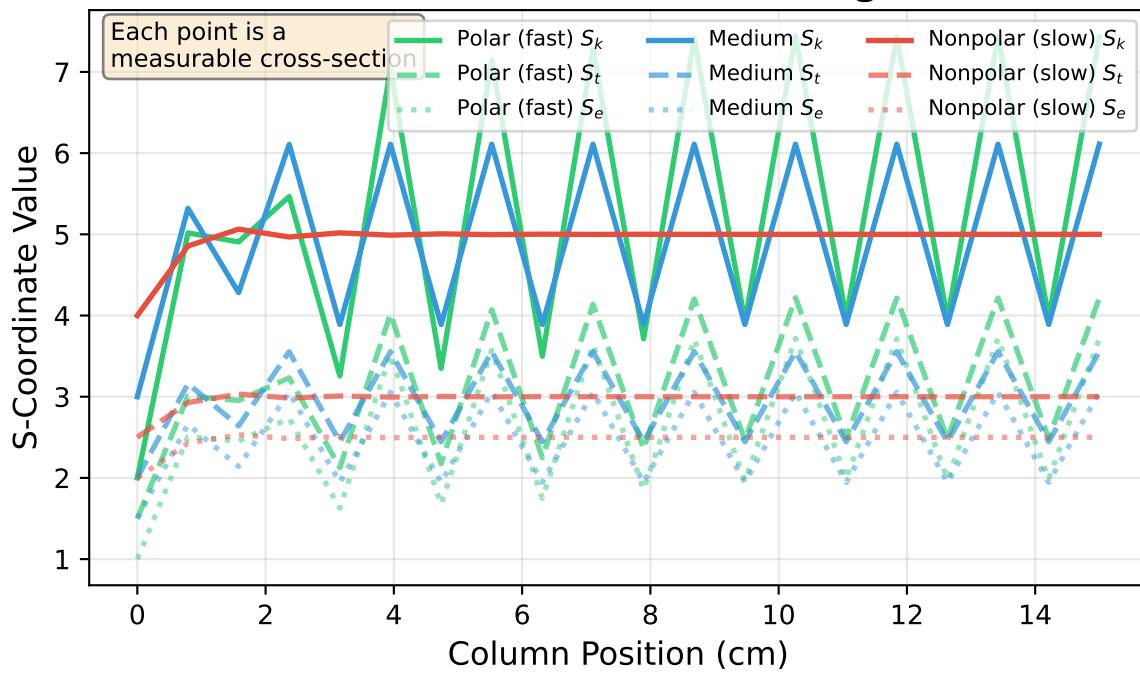
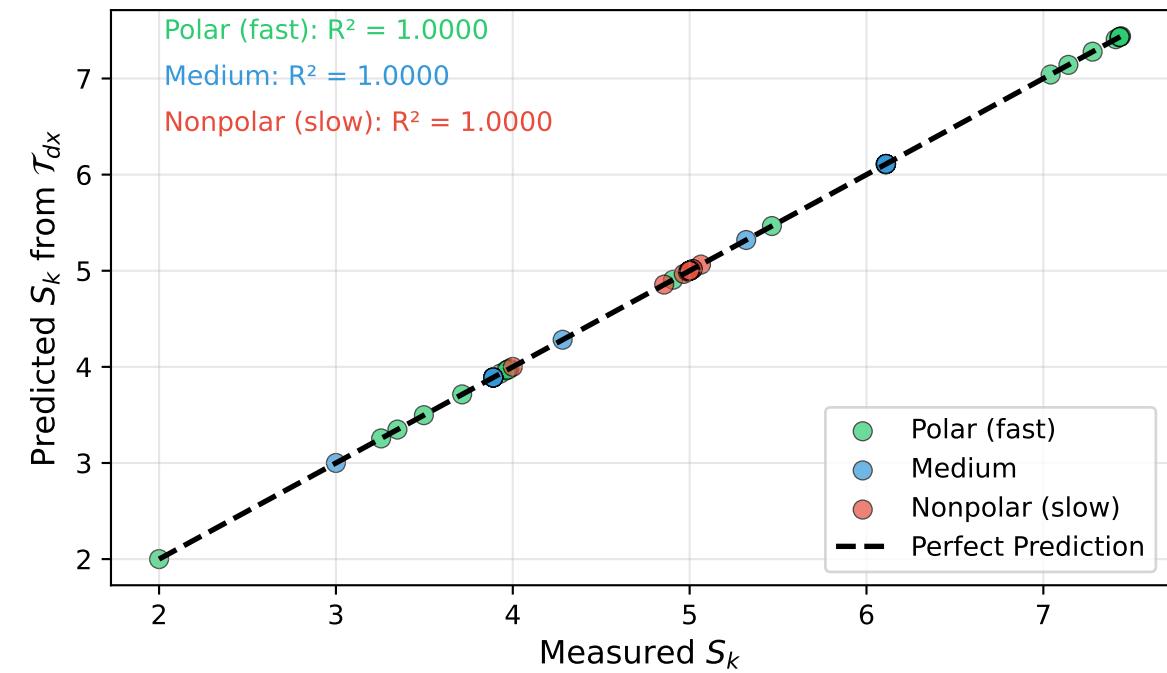


Cross-Sectional Validation of S-Transformation in Chromatography

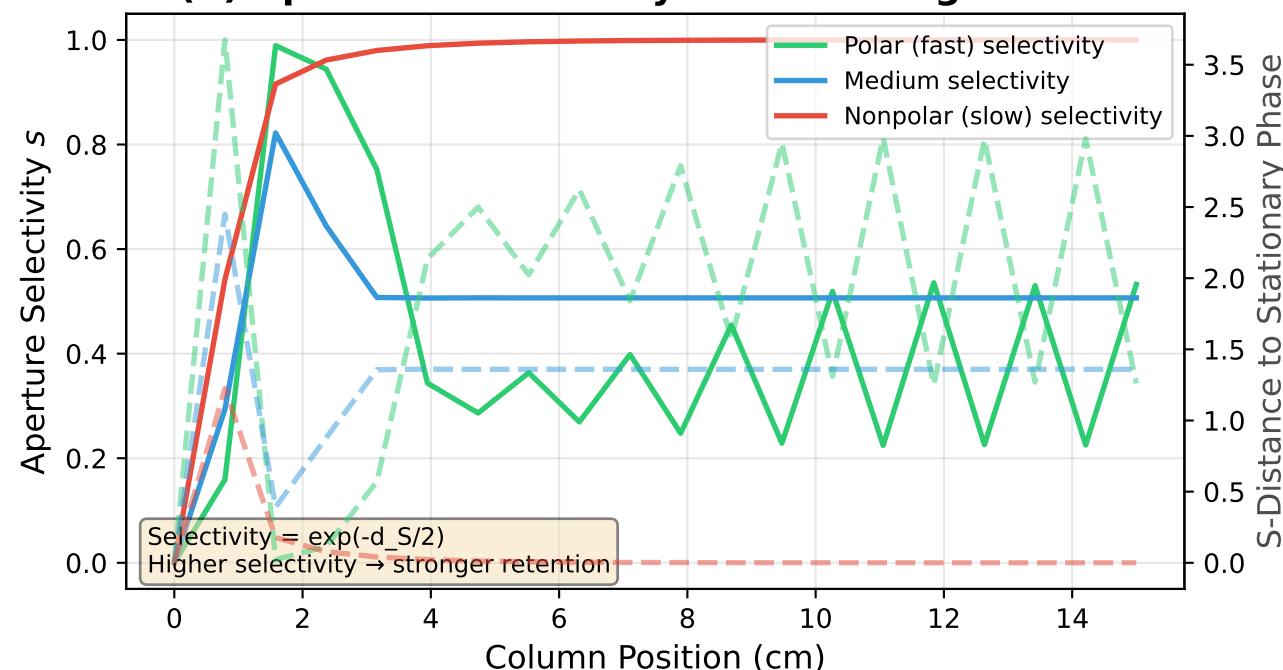
(A) S-Coordinate Evolution Along Column



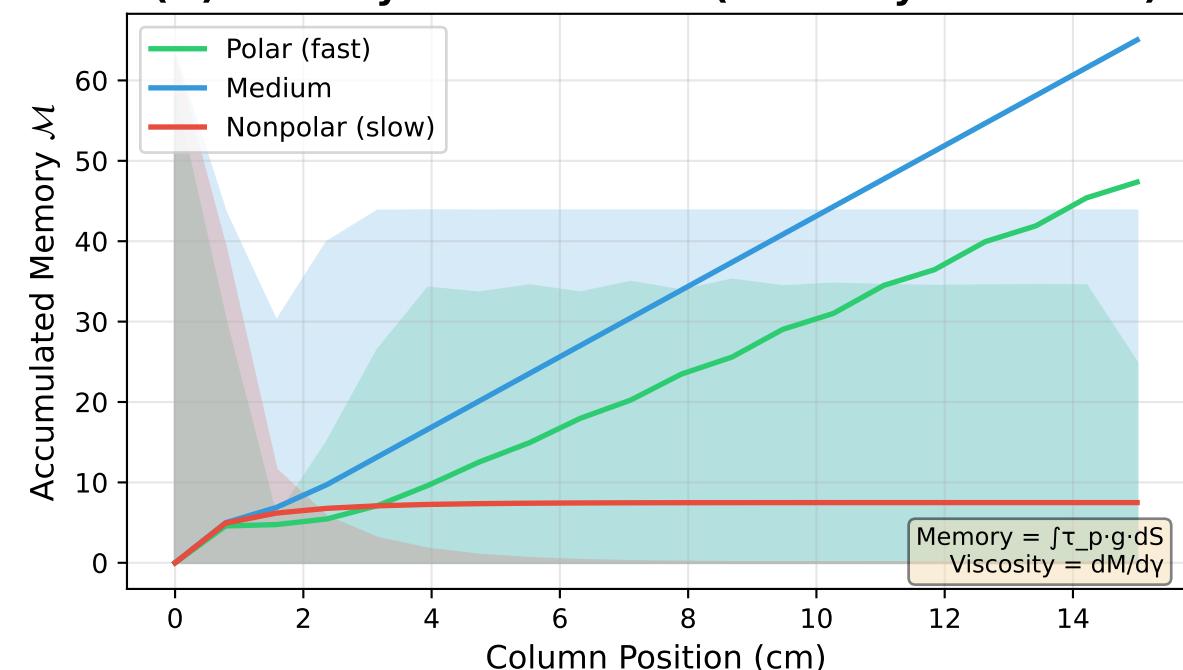
(B) Transformation Validation: Prediction vs Measurement



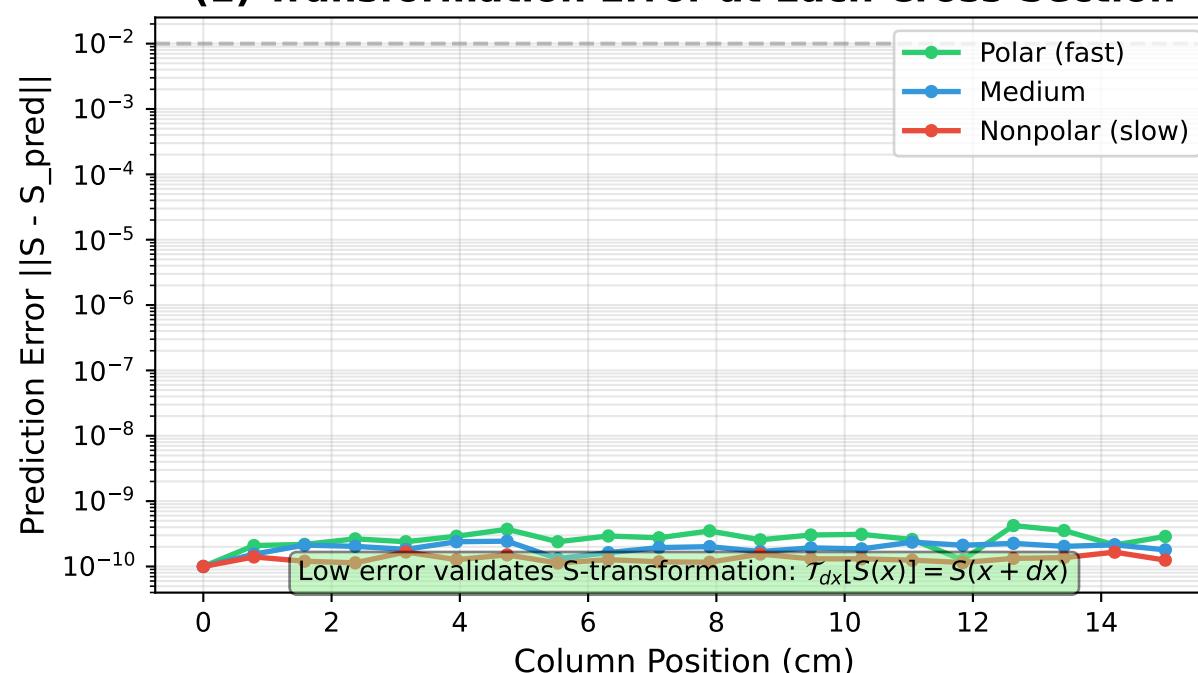
(C) Aperture Selectivity Profile Along Column



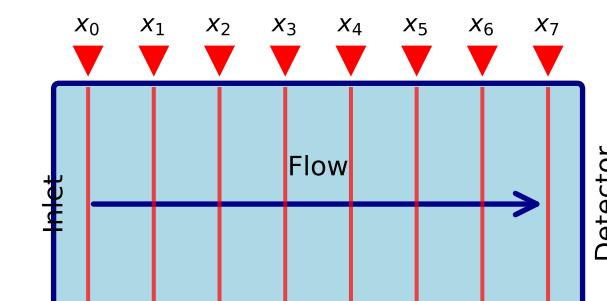
(D) Memory Accumulation (Viscosity Validation)



(E) Transformation Error at Each Cross-Section



(F) Cross-Sectional Measurement Schematic



Column with multiple detection points

Each cross-section: UV/MS measurement of S-coordinates
 $\vec{S}(x_{i+1}) = T_{dx}[\vec{S}(x_i)]$ validated at each section