



## Editorial

## Editorial on “Chromatographic selectivity triangles” by Andrew R. Johnson and Mark F. Vitha

Chromatographic selectivity is the “best” way to improve resolution between any two peaks. That is, if we can increase the thermodynamic difference between two solutes partitioning between two phases, the separation becomes significantly easier, and fewer plates are necessary. How to increase this selectivity has been a fascinating and rich topic for research for the past 50 years or more. While much method development in terms of stationary and mobile phase selection is done by anecdotal trial-and-error, higher-level empirical methods have been developed, and there have been constant efforts to put this on a more fundamental chemical basis. Certainly the Linear Solvation Energy Relationship (LSER) approach is a well-known example of such attempts.

One of the older attempts at relating selectivity to fundamental chemical interactions is through the “triangle” approach. The “Snyder solvent triangle” is well known to most chromatographers, and is where many think this approach originated [1]. While this paper, “Classification of the solvent properties of common liquids” is Lloyd Snyder’s most cited paper, with over 500 citations as of November 2010, the triangle approach has a rich history, as applied to chro-

matography, and as I learned reading this review, has proven useful in art restoration!

Mark Vitha is not a stranger to our readers; he has a history of studying fundamental interactions in chromatography, and was the first author of another high-impact review, “The chemical interpretation and practice of linear solvation energy relationships in chromatography” [2] that has already been cited more than 90 times. His interests have since moved to selectivity triangles, and the paper that follows is a *tour de force* of history, theory and practice of this approach to characterizing the chemical interactions of solutes with stationary and mobile phases. I am delighted that he accepted the invitation to write this review as my choice for this Editor’s Choice issue of the Journal.

#### References

- [1] L.R. Snyder, *J. Chromatogr. Sci.* 16 (1978) 223.
- [2] M. Vitha, P.W. Carr, *J. Chromatogr. A* 1126 (2006) 143.

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