**Effects of a solute on a simple model solvent**[1] PAOLO DE GRE-
GORIO, JONATHAN C. TOLEDO, B. WIDOM, Department of Chemistry, Baker
Laboratory, Cornell University, Ithaca NY, USA — We studied the effect of the
addition of a solute on a one-dimensional model solvent (high density, low com-
pressibility, low coefficient of thermal expansion), at infinite dilution. The solute
has a solubility which is low and decreases with increasing temperature. The effect
of the addition of solutes on the chemical potential of the solvent at constant volume
differs from that at constant pressure in a way similar to that of non-polar solutes
in water. The solvent-solvent pair distribution function determines fully the modes
of decay of the solute-solute counterpart. At the largest distances, the ultimate de-
cay is strictly monotonic (exponential) for both. But while for the solvent-solvent
correlations the amplitude associated with that mode is negligible, it is huge for the
solute-solute case. Formally, the correlations vanish in identical fashion at infinite
distances, but they differ substantially over an extended range of physical interest.
The osmotic second virial coefficient is very large and negative, not only as an effect
of the proximity 'attraction' between the solutes, but also of the very long tail in
the correlations.

Paolo De Gregorio
Department of Chemistry, Baker Laboratory, Cornell University, Ithaca NY, USA