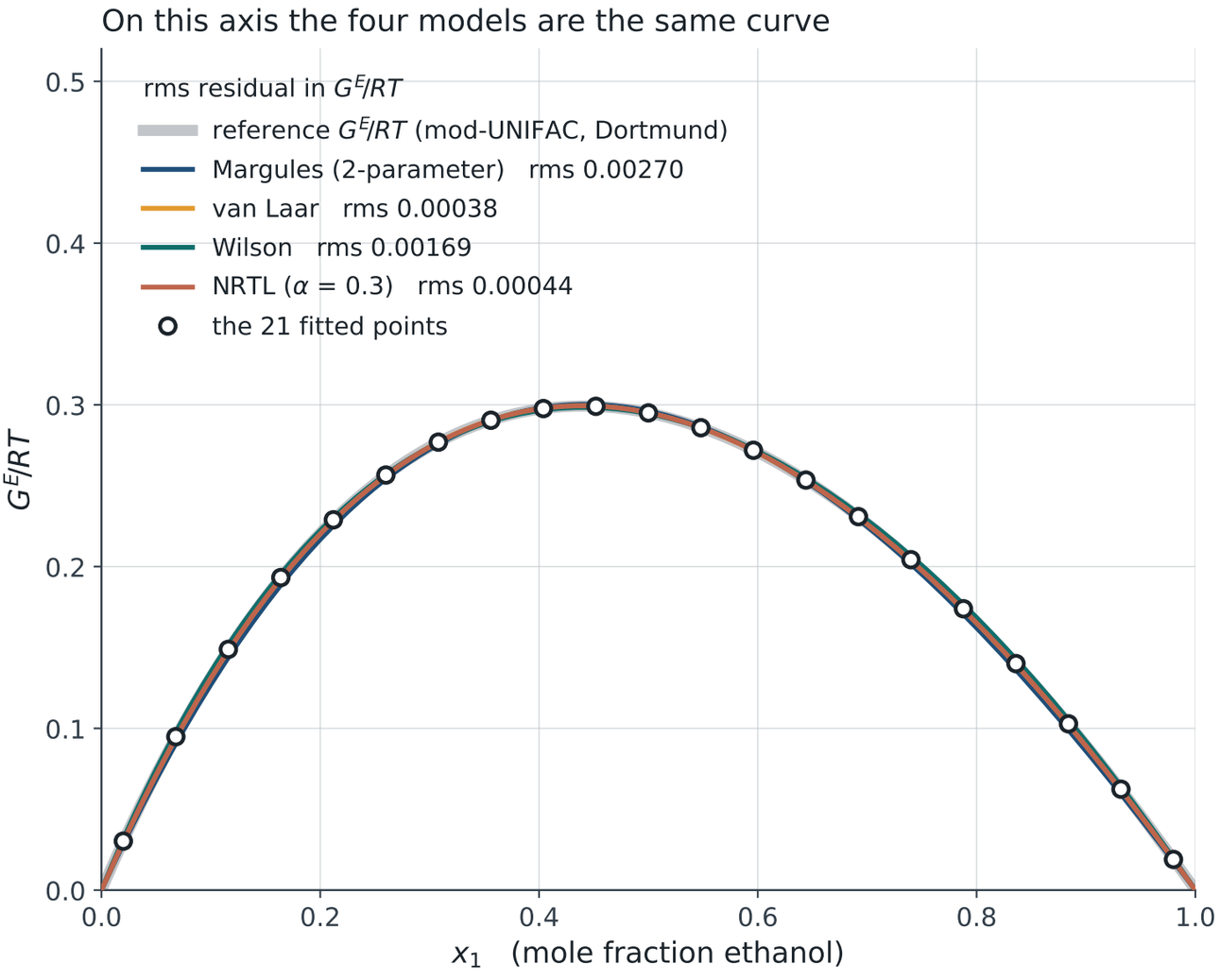
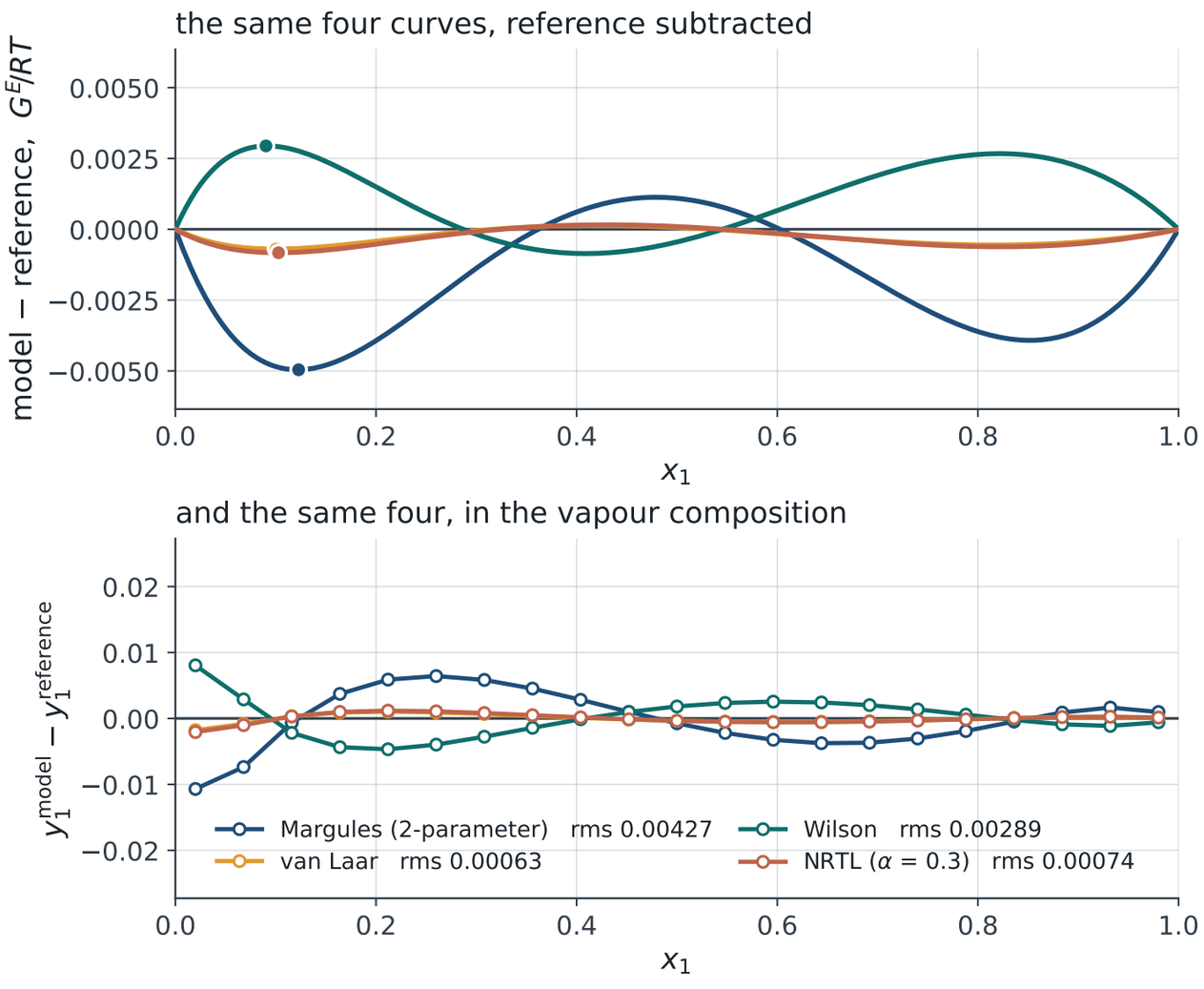
Four functional forms, one dataset: the overlay says they agree, the residual says they do not

ethanol (1) + water (2) at 298.15 K, all four fitted by `vlekit.fit` with Barker's method (objective 'P')





THE DATASET IS NOT MEASURED AND CARRIES NO NOISE. It is generated by `vlekit.generate` from modified UNIFAC (Dortmund) at 298.15 K with an ideal vapour and Antoine constants from `vlekit.data.LIBRARY`, so every residual here is model-form error and nothing else; adding scatter would bury it. The rms values say how well each form can reproduce a realistic G^E, not how well it fits a particular laboratory.

Margules (2-parameter): A12=+1.4692, A21=+0.8996 | van Laar: A=+1.5496, B=+0.9532 | Wilson: L12=+0.2364, L21=+0.7949 | NRTL (α = 0.3): tau12=-0.0307, tau21=+1.5780